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AUTHOR Lynn, James J.

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ABSTRACT

This curriculum guide, one of a series developed to assist those involved in implementing career education programs concerned with public service occupations, contains the basic instructional material recommended for the area of educational services preparation. The units described are: (1) human growth and development, (2) how people learn, (3) the disadvantaged student, (4) instructional methods, (5) basic skills in the language arts, (6) educational techniques and materials, and (7) testing and evaluation. The guide offers suggestions for course content, teaching materials, and instructional objectives as well as teacher and student activities helpful in preparing individuals for educational entry-level positions in public service occupations. Related documents are available in this issue as VT 020 794-VT 020 796 and VT 020 856. (Author/MF)

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Preparing for Public Service Occupations

Educational Services

Career Education Curriculum Guide

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Preparing for Public Service Occupations

Educational Services

by:

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FOREWORD

The Educational Services Career Education Curriculum Guide is one of a series developed to assist those involved in implementing career education programs concerned with public service occupations. This guide consists of seven units and contains the basic instructional material recommended for the area of educational services preparation. It offers suggestions for course content, teaching materials, and instructional objectives, as well as teacher and student activities helpful in preparing individuals for educational entry level positions in public service occupations. The subject matter is oriented toward teachers with minimal experience in public service training and preparation. Units are presented in a sequential order; however, each is designed to stand alone as a separate body of knowledge. Primary emphasis is on public service occupations preparation in the area of educational services; however, other individuals may also want to utilize the information contained in this guide. All of the information is "suggested," and should be adapted to meet local conditions and needs.

This guide was prepared by the California State Department of Education Vocational Education Section, Program Planning Unit, which is under the direction of E. David Graf. The major responsibility for the coordination of this guide belongs to James J. Lynn, Curriculum Specialist, Public Service Occupations Curriculum Project. A wide range of suggestions and approaches to the subject were received and, wherever possible, incorporated into the final document. Since the resulting materials represent many opinions, no approval or endorsement of any institution, organization, agency, or person should be inferred.

Patrick J. Weagraff, Ed.D.
Project Director

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Mary Auvil
Special Consultant
Santa Cruz, California

Victor A. Backstrom
Public Service Occupations Teacher
Long Beach, California

John Bunten, Senior Program Officer
Bureau of Adult and Vocational-
Technical Education
San Francisco, California

Dr. William E. Burns
Professor of Education
State University College at Buffalo
Buffalo, New York

Dr. Clark Dobson, Associate Secretary
Association for Supervision and
Curriculum Development/NEA
Washington, D.C.

Dr. Ronald Detrick
Director of Career Education
San Diego Unified School District
San Diego, California

Dr. Nevin Frantz
Assistant Professor of Education
University of Georgia
Athens, Georgia

Alfred W. Koch
Curriculum Coordinator
Rawlins Public Schools
Rawlins, Wyoming

Andrew S. Korim
Public Service Specialist
American Association of Junior
Colleges
Washington, D.C.

Fred Martinez, Consultant
Education for the Disadvantaged
California State Department of
Education
Sacramento, California

James B. Mayo, Coordinator
Fremont-Newark Regional
Occupational Program
Fremont, California

James J. McIlwrath, Consultant
Office of Program Evaluation
State Department of Education
Sacramento, California

Fred Miller, Chief
Public Service Institute
Department of Education
Harrisburg, Pennsylvania

Paul N. Peters, Manager
Career Education Task Force
State Department of Education
Sacramento, California

Mrs. Melba Williams
Georgia Municipal Association
Atlanta, Georgia

Dr. James Wykle
Education Program Specialist
U.S. Office of Education
Washington, D.C.

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Unit 1

HUMAN GROWTH AND DEVELOPMENT

Here are the contents of the introductory unit to the Education group. We suggest a careful reading of it before you read the text.

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Unit 1

HUMAN GROWTH AND DEVELOPMENT

INSTRUCTIONAL OBJECTIVES

1. Ability to develop an understanding of the process of human growth, and to relate it with the process of human development.
2. Ability to distinguish between the stages and areas of human development.
3. Ability to recognize that behavior is related to stages of development.
4. Ability to interpret coping behavior.
5. Ability to use an understanding of human growth and development to effectively work with people.

CONTENT

INTRODUCTION

This section has to do with understanding the process of human growth and development. Public-service employees need to know about human behavior as related to growth and development in order to work effectively with their co-workers and the people with whom they come into contact on their jobs. For example, a preschool teacher's aide should be aware of the special needs of young children, and a community program aide may need to be more aware of the special problems of senior citizens. In fact, everyone working in public service should be sensitive to the fact that the reasons for the behavior of people are closely related to their developmental stages.

If the curriculum provides insight into human development, the students are then more likely to develop this insight themselves. They should, for example, appreciate the fact that their developmental level is determined by the action of both heredity and environment. For this reason, this unit will demonstrate that man is largely a product of his nature and training.

A teacher has an opportunity to provide students with a positive model to emulate, since students often identify immediately with the people with whom they are working. Through this identification, they can bring out, talk about, and understand some of their own past behavior, and find new ways of interacting with their fellows.

In addition, learning about human growth and development provides an opportunity for a definition of the ultimate goals of education. Setting goals at *attitudinal* levels, and understanding what this means, is important.

GROWTH AND BEHAVIOR

One method of looking at this part of life is to think of growth as gradually attaining maturity and learning.

The baby is literally a part of its mother before birth. Life is cozy at this stage, and it has no need to make demands. Human beings sometimes feel a need, at times of stress, to revert to this comfortable condition. After birth, a baby begins to learn through coping behavior; he discovers that crying elicits a response from mother. Next, he begins to learn to get around by himself, walking and exploring his environment. In time his environment expands to include his neighborhood and he makes playmates.

He goes to school - his first experience completely on his own. Peer group relations begin in elementary school and relations are formed with teachers.

Puberty begins with the adolescent stresses of approaching manhood or womanhood. Maturity and adulthood complete the pattern of growth and maturation. Responsibilities are assumed and career decisions are made.

Growth and behavior can be viewed as a continuing lifelong process: *Growth and development is a series of tasks to be accomplished and needs to be met.* If needs are not met, the individual may be unable to perform the tasks demanded at the stage of growth he is in.

Stages and Areas of Development. Human development can be classified into two distinct categories. A *stage of* *development* refers to a period of time, and has to do with an individual's chronological age. On the other hand, an *area of development* refers to the different aspects of individual growth and maturing. Usually, the stages and areas of human development are classified as:

- *Stages of development:*

  Infancy to six years
  Six to twelve years
  Twelve to nineteen
  or twenty years
  Adulthood

- *Areas of development:*

  Physical
  Intellectural
  Social
  Emotional

Relationships of Stages. Each stage of development affects and acts on the other stages; likewise, the areas of development are also influenced by the age of the individual. Much overlap can and does occur. Developmental stages can be looked at to see if a person is accomplishing the tasks appropriate to his age. If not, why not?

If a person is unable to accomplish the tasks required by his stage of development, he may become frustrated and angry and as a result, abnormal behavior may develop. This type of behavior shows itself in all areas of development - physical, intellectual, social, and emotional. When this happens, teachers, parents, aides, social workers, and psychologists must take action to give assistance.

Growth and Development and Learning to Cope with Life. Behavior can be viewed as a *coping* activity; man survives by coping with his environment.

All human beings have to cope with living from earliest infancy. If an infant's cry gets a response, then he has coped by learning to evoke responses from his environment. He learns that making an effort brings satisfaction. When this does not happen, the baby early learns to give up and begins to feel that coping does not bring the rewards he wants. The effects of living in restricted environments where satisfaction is not attained have been noted in studies on children raised in impersonal institutions, such as in orphanages or children's homes.

Critical phases of development (times of stress and challenge) include birth, learning to walk, or going to school for the first time. These require greater coping strengths than the intermediate periods.

The individual uses many methods of coping. The infant cries; then, as he grows, he tries talking and asking questions; as he gets older, he looks for ways of *getting around* situations. The style of coping that an individual develops grows out of his first relationships - what he has found works with his mother and with other family members. As he gets older and goes to school and meets teachers, he will test his previously learned behavior to see what works with them. One important thing the young child soon learns is that the teacher can't be influenced or controlled by the same kind of behavior that worked with mother. The child may adjust by using *defense mechanisms* - ways of avoiding anxiety or preventing loss of self-esteem.

A person who finds he can't cope may develop these defenses:

- Withdrawal
- Projection
- Repression
- Fixation
- Identification
- Displacement

THE CHILD FROM INFANCY TO SIX YEARS

In these years, the child learns as much as he will learn during the rest of his life - not academic knowledge, but knowledge in all areas of living. Great challenges and rewards await those who work with young children in an effort to provide them with rich and varied backgrounds for future growth.

Physical Development. Hereditary factors play a large role in the child's early development. Physical growth is fastest at this stage, and the child begins to accomplish tasks which are the basis of the balance of his living:

- Breathing
- Eating
- Sucking
- Rolling over
- Sitting
- Standing
- Walking
- Using muscles
- Developing muscles
- Growth of bones and body

Large muscles develop first - we give young children large crayons rather than pencils, since it takes small muscles to hold a pencil right. Muscles have to develop in such a way that they work together, or in *coordination:* this is why a child has to learn to walk before he can skip, run, climb, etc.

Intellectual Development. The young child begins to use his five senses to explore the environment, dealing with reactions from those with whom he comes in contact. For example, the infant senses tension in the person who is feeding him, and responds to this long before he understands what tension is.

There is a distinct relationship between sensory and intellectual development. For example, the use of eyes, ears, taste, smell, and touch to find out what the environment is like. Sensory defects or handicaps can interfere with learning, as well as social or emotional development.

The young child must accomplish certain intellectual tasks:

- He must become aware of his immediate environment; for example, he needs to know about the house in which he lives and what the people in it are like;
- He learns how to talk; learning to communicate with others is a significant event in the child's life;
- Feelings are developed in the child; he experiences trust, individuality, and love;
- He begins to think on a concrete level; his thinking is not logical or abstract yet.

As a public-service worker, one should be supportive of the child at this stage, accepting the child's mistakes and allowing him to learn from them. The child should not be made to feel ashamed of his efforts. Negative feelings should be avoided - whenever possible, stress positive feelings and attitudes. The child's self-image must be allowed to develop in a positive, healthy environment. The way the child feels about himself will be reflected in practically everything he does.

Social Development. The infant first develops a social sense through relationships with mother, then father, relatives, brothers, sisters, and playmates. As the child grows and is able to get around and talk, he competes with brothers and sisters for attention and affection from parents and others. This is the individual's first experience with a group. He will tend to behave in other groups, such as school, the way he has learned to behave at home.

The growing child begins to socialize with people outside his family. First, he plays with friends or playmates at home, then in the neighborhood, then in preschool. At preschool he must find a place for himself in the group, or he may begin to think of himself as unworthy of others' friendship. If this happens, he may withdraw and not try any more, or he may try to make a place for himself by becoming the class clown. His teachers' attitude toward him is important in helping him to deal with this problem.

Relationship to society should begin sometime during elementary school. The child should begin to think of himself as part of the larger society, and begin to have feelings of identity because he *belongs* to the group. Ability to give up some of one's wants and desires for the good of the group cannot be developed unless the individual feels that he belongs somewhere. Absence of a sense of belonging is considered by some scientists to be the origin of antisocial behavior.

Social tasks to be accomplished include:

- Learning to get along,
- Learning to give and take,
- Learning to assert himself.

Once again, the concept of self-image comes up. It is necessary that those who work with children help the child to acquire a feeling of self-worth. The self-image that a child develops in this stage must be a positive, healthy one - it is extremely important that the young child feels good about himself.

Emotional Development. This area is closely related to social development and to the establishment of self-worth. These two areas are also closely related to the physical and intellectual growth that enable the person to take his place in a group, to compete physically and intellectually, to win and to lose.

Emotions such as fear, anger, love, and self-image begin to have increasingly important meaning. Likewise, the infant begins to have definite reactions to such fears as loud noise, loss of support, and loneliness. As the child grows older, fear of new things, such as the unknown and the dark, influence his imagination to the extent that the child often is not able to really distinguish between fantasy and reality.

The infant becomes angry when his needs are not met. When he feels rejected, unfairly treated, or misunderstood, he may cry or feel frustrated. Anger will be repressed if the child finds that the punishment for expressing it is too great. He will feel a need to have angry feelings even though he is not allowed to act them out. Thus, the child should be encouraged to express his feelings.

The ability to love and to trust develops when a child feels loved and trusted, and when the parents have proved trustworthy in meeting his needs as he grows. A child can take a lot of deprivation in material things such as toys and clothes if he feels that he is valued and loved by his parents. If he has not been able to trust an adult, or to feel loved by one, he will have a hard time trusting and loving as he grows older.

Sexual curiosity begins; bodily exploration is natural for children between four to six years.

The task of the individual as he grows older is to develop emotional maturity. That is, he must gain the ability to accept responsibility for what he does, to compete and win or lose, to give and take love, to express or overcome his anger. In short, he must prepare himself to reach adulthood as a mentally healthy person.

THE CHILD FROM SIX TO TWELVE

Not only are the physical, intellectual, social, and emotional areas of development closely related, but each stage of development depends on, and will be influenced by, what went on in the stage before it. For instance, a preschooler who felt unwanted at home and who found no place for himself in his preschool group will come into elementary school expecting not to be liked. If his new teacher cannot help him overcome this feeling, his expectations might lead him to behave in a way that will make his classmates reject him.

Physical Development. By the age of six the child has learned to coordinate and use his muscles to run, skip, climb, throw a ball, and play games of physical skill. At six, physical growth slows up, though the muscles continue to increase in strength.

Sometimes before age twelve there will be a spurt in development of sexual characteristics and their outward appearance on the body.

Physical health will influence both behavior and learning. For example, eye problems and defective hearing often show up now. Early detection of problems of this nature is important for truly effective learning.

Athletic skills affect emotional and social adjustment because of acceptance or rejection by the child's peers.

Children at this age may also be cruel to anyone who is different, teasing others about physical handicaps.

Intellectual Development. The child of six is supposed to come to school with elementary concepts about the world around him. He should be able to sort things into categories, hear differences in sounds, and have a fairly well developed vocabulary and speech. Children lacking these skills often find themselves unacceptable to their teacher and are labeled as slow to learn. They sometimes begin to think of themselves as stupid, particularly if this is the way their teacher sees them.

Conformity and the need to be accepted by classmates are important now. Learning difficulties can be caused by many things:

- low intelligence,
- fear of competition,
- fear of new situations (school),
- fear of failure,
- lack of motivation to learn since the family does not value learning.

Opposing feelings may crop up; for example, wanting to grow up and wanting to remain a baby at the same time. Such experiences are called *ambivalent feelings*.

Social and Emotional Development. These two areas are put together because they are so closely intertwined at this age. Social acceptance by one's peers becomes more important at the age of six than almost anything else. Attitudes of his peers greatly influence emotional development and self-concept. From four to six it is important to be accepted by both sexes. From six to ten children tend to ignore the opposite sex.

Acceptance by peers now requires skills and the ability to use them in physical, social, or intellectual competition. The ability to lead and to follow develops now. Acceptance of group values is the rule, rather than those of teacher or family. The latter sometimes leads to great conflict in the child, particularly when the teacher encourages or demands tattling.

Sex-role identification occurs. This becomes increasingly important as children begin to play more and more with their own sex group. Cultural stereotypes are developed. For example, males are supposed to be aggressive, strong, restless, and daring; females are supposed to be docile, timid, and amiable. The parents are often the role models in this process.

The child about nine begins to more and more reflect his sex role. Girls usually like quiet games and domestic play; boys like rough play, mechanical things, and books and stories about daring heroes or athletes. A natural *gang* stage appears at this time as boys associate primarily with boys and girls associate with other girls. Acceptance by peers is strongly influenced by adoption of the right sex role.

Conscience in middle childhood is developed in terms of doing things that will make them accepted by other children. Social acceptance becomes the rule. The young child wants to be independent, and efforts to break away from family control are strong. Between nine and twelve, children are often angry, restless, moody, and rebellious.

Their need for social acceptance very often leads to their joining peer groups: *cliques or gangs.* In elementary school, gangs are formed and it is terribly important to belong. The gang can be very cruel to the outsider. Peer-group attitudes can drastically influence an individual's values and attitudes toward learning, self-image, functioning in a group, etc. When gang values are not the same as those of the teacher and the school, the member of the gang is in continuous conflict, both within himself, and with others.

ADOLESCENCE

Adolescence is a difficult time; a time of many changes; a time when young people try to find out just who they are, what they care about, and what they want to do in this world. They search for their identity and try to find where they belong in society. Consequently, adolescence is a time of great tension and uncertainty, which is reflected in all areas of development. The areas of physical, intellectual, social, and emotional development will all be influenced, and will influence each other as the individual tries to find himself.

Physical Development. Rapid growth in stature occurs, not unlike the first years of growth. Characteristic developments in this area include body changes accompanying glandular development and sexual characteristics, manifested by such things as voice changes, and awkwardness with the opposite sex.

There are individual differences in the rate at which these changes occur. Physical growth progresses at different rates for various parts of the body. Some individuals lag way behind and begin to think of themselves as unattractive to the opposite sex.

Hence, there is a great interrelation between physical growth and self-concept at this age. At the same time, the adolescent fears his own sexuality, and may be embarrassed by it.

Intellectual Development. From the ages of thirteen to sixteen, mental ability continues to increase, and then begins to level off. The individual can now reason for himself, *he can not only think about and imagine things* that he cannot see, hear, or feel, *but he can also evaluate* the logic of his thinking and reasoning.

The adolescent develops special interests, particularly as he begins to realize that he must make definitive educational and vocational choices. He utilizes past knowledge of job requirements. He may take trips to see certain career persons at work, and do additional reading to become thoroughly familiar with jobs and careers. This career exploration and orientation will build toward a career choice in late adolescence.

Social Development. Early adolescense is the time of the close friendship with a chum, usually with members of the same sex. The course of the friendship and the person's feelings about himself are largely influenced by his previous development. For example, his success or failure as a young child, in elementary school, and now in high school. His values and interests reflect not only his present experiences, but the past as well. His behavior is largely the product of his biological endowment (heredity), and his environmental experiences (training).

Social development also occurs with the opposite sex, but usually with less speed. In relations with the opposite sex, too, both the past and the present bear on the person's feelings about sexuality, his own personal worth, and very emphatically on how he views his own sexual attractiveness. It is very important for him to look, dress, act, and behave like his peers.

Sexual morality is important in adolescence, although sexual yearnings and needs often conflict with the patterns of behavior which are acceptable to his parents, teachers, and school. The values of the peer group as a whole are often opposite to those of adults in authority. The individual must now decide for himself whether he shall choose the values of his friends or those of the establishment - parents, teachers, ministers, law-enforcement personnel. If he chooses the latter group, he may sacrifice popularity with his peers, which is terribly important at this age. The value judgments he makes now will affect how well he handles the following:

- *Dating* -- When, with whom, how often?
- *Sexual behavior* - Boys fear inability to perform; girls fear pregnancy.
- *Adolescent behavior* - In relation to society as a whole.
- *Drugs* - Use or nonuse, why, what kinds, legal/medical restraints?
- *Rebellion* - Why? To what degree?
- *Conformity* - Why? To what degree?
- *Noncommittal* -- Why? To what degree?

Emotional Development. Youth at this stage often feel a conflict between the desire to mature and the desire to remain a baby, and to refuse work and responsibility. Young people may act mature at one moment, immature at another. By fluctuating their behavior between being demanding babies and responsible adults, they reflect basic conflicts of identity. They feel conflicts about the need to make decisions, especially about education, vocation, and marriage.

The self-concept developed during the preceding years usually enables them to withstand stress and frustration and come to some decisions. Final resolution of conflict comes about by separation from parents, and the establishment of independence. A sense of responsibility develops at this stage.

THE ADULT

If development has proceeded normally, the individual is now mature and ready to take his place as a functioning member of society. Though his physical growth has been completed, intellectual, social, and emotional growth and learning can continue for the rest of his life. He can go on learning to know and value himself.

He should be able to realistically appraise his strengths and weaknesses. The adult develops ways of capitalizing on strengths, and learns how to cope with weaknesses. That is, he can become more and more mentally healthy, with an increasing ability to form good relationships with his fellow human beings. In short, he learns to accept himself as he really is.

The mature adult is able to recognize that he has both strengths and weaknesses, capacities for good and evil, and the ability to continue to learn and change, no matter what his age may be.

STUDENT
LEARNING
ACTIVITIES

- View, and be prepared to discuss, such films on growth and development as: *Meaning of Adolescence; Who is Sylvia;* and *Human Growth and Development: Facts and Feelings.*
- Observe, and discuss in small groups, presentations on growth and development, such as: *The Individual: A Product of Heredity and Environment; Major Growth Periods;* and *Interrelated Dimensions of Growth and Development, Level 4.*
- View filmstrip presentations on human development, *Developing Your Personality*; or *The Story of Human Life, No. 2.*
- Listen to such experts as school counselors or psychologists discuss human growth and development.
- Discuss questions such as:

  Why do people learn how to cope?

What problems of adolescence do you think might relate to you?

How does physical growth affect behavior at different developmental stages?

- Engage in individual study whenever possible on selected topics, as:

  How much of behavior is determined by hereditary factors and how much by training (environmental) factors?

  Why do preschool teacher's aides need to understand the process of growth and development?

- Role-play various defense mechanisms. For example, dramatize some typical defenses of a person who cannot cope: withdrawal, projection, fighting, crying, etc.

- Observe such movies or slides of people at different developmental stages as: *Development of Individual Differences;* and *Health and Safety Correlated Text-Film Series: Your Body During Adolescence.* Be prepared to discuss relationship of behavior to developmental stages.

- Write a brief essay telling how understanding human growth and development will enable you to work more effectively as a public servant.

- Prepare questions on difficult points to ask selected public service workers when they visit your class.

TEACHER MANAGEMENT ACTIVITIES

- Show and discuss with the class, films on the stages and areas of development. For example, *Meaning of Adolescence; Who is Sylvia;* and *The Story of Human Live, No. 2.*

- Present, and allow for small group discussion afterwards, basic concepts of growth and development with such transparencies, as, *The Individual: A Product of Heredity and Environment; Responsibilities of Pre-Adulthood, Level 4;* and *Major Growth Periods.*

- Use instructional aids, for example, *Birth and Human Development,* to demonstrate the process of human development.

- Arrange for visits by counselors or school psychologists to discuss human growth and development. Have the students prepare lists of questions to ask the visiting experts.

- Encourage students to discuss the questions and points presented as the problems of adolescence, or the relationships between physical growth and developmental stages.

- Provide opportunities for individual study whenever possible. Encourage the students to explore material on growth and development at the school library or media center.

- Provide opportunities for individual study whenever possible. For example, assign supplementary readings on the influence of heredity as compared with training. Encourage students to explore materials on growth and development at the school library or media center.

- Have students participate in role-playing situations to show various defenses used when persons cannot cope, for example, withdrawal, projection, fighting, crying, etc.

- Allow and encourage students to relate personal experiences of how growth and development has affected their behavior.

- Have the students write essays on understanding growth and development, and how this can help them work more effectively in public service.

- Bring public-service workers from the education and social service groups into class to discuss points of concern.

RESOURCES

The Story of Human Life, No. 2 (Filmstrip, purchase), Educational Activities, 1968.

Birth and Human Development (Study print, purchase), Instructional Aids, 1970.

Major Growth Periods (Transparency, purchase), Creative Visuals, 1969.

Growth: Quantitative and Qualitative (Transparency, purchase), 3M Company, 1969.

Interrelated Dimensions of Growth and Development, Level 4 (Transparency, purchase), 3M Company, 1969.

Human Growth and Development: Facts and Feelings (Sound filmstrip, purchase), Warren Schloat Productions, Inc., Pleasantville, New York, 1972.

The Individual: A Product of Heredity and Environment (Transparency, purchase), Creative Visuals, 1969.

Developing Your Personality (Filmstrip, purchase), Harcourt Brase and Jovanovich, Inc., 1969.

Health and Safety Correlated Text-Film Series: Your Body During Adolescence (Movie, 16mm reel, purchase), McGraw Hill, 1969.

Adolescent Girl in Conflict, Gisela Kanopka, Prentice-Hall, 1966.

Responsibilities of Pre-Adulthood, Level 4 (Transparency, purchase), 3M Company, 1969.

The Cool World, Warren Miller, Fawcett World Library, 1965.

"It's the Same, But It's Different," Robert Coles, *Daedalas*, Fall, 1965.

Frontiers of Psychological Research, Stanley Coopersmith, W. H. Freeman and Company, 1966.

Films Available from Head Start:

Each Child Is Different (16mm, 17 min.), McGraw-Hill, 1965.
Development of Individual Difference (15 min.)
Meaning of Adolescence (16 min.)
Who is Sylvia (30 min.)

Unit 2

HOW PEOPLE LEARN

Here are the contents of Unit 2 of the Education Group.
We suggest a careful reading of it before you read the text.

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Unit 2

HOW PEOPLE LEARN

INSTRUCTIONAL OBJECTIVES

1. Ability to form a personal definition of human learning.
2. Ability to differentiate between trial-and-error and other forms of human learning.
3. Ability to demonstrate a knowledge of the basic factors in effective learning.
4. Ability to recognize the importance of individual differences in learning abilities.
5. Ability to understand how the learning environment can affect the progress of human learning.
6. Ability to apply elementary concepts of human learning to work more effectively in the field of public service.

CONTENT

INTRODUCTION

It is impossible for a teacher's aide to assist in an educational program without a knowledge of how students learn and why instructors employ certain teaching methods. Some instructors may use good techniques of instruction without knowing much of the theory of learning. But both the teacher's aide and the instructor will do a better job in the long run, and in new and changing situations, if they have an understanding of the basic learning theory related to the specific techniques required for helping people to learn and grow.

This section deals with some of the facts and principles of learning and teaching on which effective instruction for educational training can be based.

People learn in many different ways: by reading, listening, watching, doing useful things, thinking, and solving problems. The success of any of these ways of learning depends on several elements, of which attention and interest are the central and overriding forces. In an educational setting, no method or approach to learning can be very successful if it fails to hold the student's interest and attention. It is relatively easy to determine when students are interested in subject matter. It is more difficult to determine when they are not. For example, students having a strong desire to learn a certain language are able to learn the required vocabulary and structure even though in the past they may have done poorly in, or avoided, such courses.

Attention will vary with the nature of the subject, the level and quantity of the instruction, and with the previous experiences of the student both in and out of school. Students with experience or knowledge of the subject matter being presented usually are more attentive to problem-solving learning activities. With less experienced or less knowledgeable students, situations involving a variety of activities are necessary.

The skilled instructor uses techniques and activities that hold the attention and interest of the greater number in his group whenever possible. They use other techniques to reach individuals in the group as the need arises. *Instructors and teacher's aides need to know how individuals learn.*

HOW DO PEOPLE LEARN?

People learn in many different ways. Among these ways are:

Learning by Trial-and-Error. When people are confronted with an uncomfortable task, they feel frustrated. This frustration stops when additional resource capabilities are put at their disposal. After a few such instances, people learn that a particular problem can be solved by seeking outside assistance. For example, a preschool teacher's aide learns that sometimes young children need assistance in getting started, and that this help reduces the child's frustration. The child can then usually continue on his own without too much additional assistance. The teacher's aide has, in this instance, learned by trial-and-error.

Usually children make many kinds of gestures and activities until assistance is received. After awhile, they learn exactly what to do to get results. Most young children learn many things by trial-and-error. But as they get older and gain experience, they don't have to make as many trials to learn what will work.

Most everyone uses trial-and-error to some extent, and this method is the only method that can be used at times. However, contrary to popular opinion, *learning things the hard way is not always the best way.*

Learning by Observation. Much is learned by carefully watching others do something. This helps to eliminate some of the trials that would normally be made when a trial-and-error method is used.

Young children, especially, model the behavior of their parents, brothers, sisters, and preschool teachers. In fact, children are often very selective in the behavior that they model.

Studies have demonstrated that if children are able to observe people being differentially rewarded for specific behaviors, they are more likely to copy (or model) the rewarded behavior. Observing what goes on around one's surroundings is a very valuable habit. Educational programs should allow and encourage the student to learn by observation. *But more importantly, teachers should teach the student to observe with objectivity, while enhancing his learning with the necessary "doing."*

Learning by Doing. Some instructors in public schools tend to be too wordy. They confuse telling with teaching. Words are important and no instructor can do without them, but words usually convey only part of a meaning. Some form of activity or experience is necessary to help the students understand the subject. Individuals raised in cities have difficulty in forming ideas about the types of work performed on a farm unless they have had similar types of work experience. Skill acquisition requires an integration of the behaviors needed to accomplish the activity smoothly.

No amount of verbal education, TV, or movies can take the place of experience. With physical tasks, there are obvious reasons for learning by doing. Physical skills, such as climbing an aerial ladder, staking a tree, or reading a lesson to children, are examples of highly skilled behavior. They are learned by integration, and by experiencing how right the movements feel. This is the reason why an instructional demonstration should preferably be followed by the student actually doing the task.

A student may get the general idea, but can never get the *"feel"* of the skill by observation alone. When a person learns motor skills, such as using hand tools, walking, or throwing an object, a change must take place in the muscle and nervous system. This comes only through *doing*, and perhaps practicing, over a period of time whatever it is that is to be learned.

However, activities such as surveying a park, calculating tax records, fertilizing a public garden, or even reading instructions, are usually too complicated to be learned by this method alone, and require both *observation* and *doing*.

Although it is often neglected, the principles of learning by doing hold just as well for nonphysical learning. Each principle in a lesson can be practiced by carefully prepared student assignments and problems that make use of the principle presented by the instructor. Students can summarize, review, discuss, and apply these new materials in later sessions. Training aids, including working models and achievement tests that require interpretation of facts, are effective helps to learning by doing.

Even while presenting material using lecture methods, it is possible to have mental participation by the student. The skilled instructor can apply the principle of learning by doing while talking, by challenging the trainees, and allowing time for them to:

- Answer questions silently,
- Criticize ideas,
- Disagree and try to defend their ideas,
- Apply the relationships or principles to other specific uses.

Learning by Transference. Learning one specific task or subject may help a trainee to learn other specific tasks if the two are closely related or made up of the same elements, and the student is able to recognize the relationships between these elements. Research indicates that people who have a knowledge of one language learn additional languages in shorter periods of time.

If a city park worker learns that a graden plot 3 feet by 8 feet equals 24 square feet, then by transferring this knowledge, the trainee should know without further instruction, that 8 feet multiplied by 3 feet equals 24 square feet and with a minimum of instruction, that 30 feet by 8 feet equals 240 square feet, and that 30 square feet multiplied by 80 square feet equals 2,400 square feet.

If such transfer does not take place, in all probability the instructor has failed to illustrate the underlying principle in such a way as to enable it to come to mind in new but related situations.

When any subject matter has been taught with appropriate practice exercises and the student fails in an effort to solve a slightly different problem in which the same principles are used, there is reason to doubt that the instructor is teaching with transfer of training in mind. In learning, practice and drill are essential, but so is an understanding of the principles involved.

Learning the "Why." Teaching the "principles of learning" to potential teacher's aides is not apt to have much effect on their performance unless the principles are applied in a variety of practice situations or related to past experience. The relationships of these principles to the teaching process must also be evaluated and emphasized.

In teacher's aide training, there is a need for instruction that facilitates transfer of learning from one situation to another. It should be remembered that there is a wide range of activities in the fields of education and library science. Sometimes, aides are placed with new teachers, and are transferred to new situations, in which they may then be working in such areas as audio-visual or administration. These positions do vary tremendously. It is not enough to know the specific steps of procedure for a given task in teaching. The principles and the *"why"* must be understood if the student is to adjust to a changing situation with a minimum of further training or field support.

Methodology of Teaching. There are several methods of aiding the transfer of learning that can be applied by instructors and aides. Procedures that can be applied to aid the positive transfer of learning include:

- Stress the underlying principles and ideas of what is being learned and make sure the students fully understand the concept; they will then be able to apply the principles to new tasks or subjects;
- Help the students to see the relationship of parts of the subject or material being taught to the other parts;
- Let the students know when to expect transfer situations in training and how to facilitate the transfer;
- Use realistic problems, discussion, and leading questions to give practice in transfer situations;
- Pay attention to *how* the student learns and the approach he takes to problems as well as to his results.

Negative Transfer. Under many circumstances, skill in one activity or one way of doing something may actually interfere with learning a new skill. This is called *negative transfer*. There is research evidence to show that one should not attempt to learn two very similar languages at the same time because the result is a negative transfer or nonlearning. The one activity actually slows down or completely stops the other learning activity from being acquired.

PLATEAUS IN LEARNING

Plateaus in the process of learning are like the landings in a long flight of stairs. Not all learning curves show plateaus. They are particularly evident in the development of high degrees of skill which are becoming more common in the public educational system. Once students have mastered the steps of procedure for performing a skill, they may become discouraged because they do not seem to be making further progress toward a higher degree of skill. One cause for this leveling off effect may be that, although the students know how to perform a skill, they have not practiced it enough to make it a habit.

An additional cause of a plateau may be the result of the student changing his mode of attack on the problem. When the student is first making these transitions he may show no apparent improvement in performance. Students in teacher aide programs should be informed of this learning characteristic and its causes so they can recognize that it is a natural event and something experienced by everyone who strives for perfection.

The answer to overcoming learning plateaus usually lies in continued practice. As practice is continued and coupled with a strong motivation to learn, the process will gradually become just as automatic as walking or talking. At this point the particular skill is said to be *internalized;* it is a part of the individual's behavior.

Several plateaus may be encountered in a lengthy training program along the road toward student acquisition of a high degree of skill. Teachers and teacher's aides should:

- Recognize the existence of plateaus,
- Inform students of plateaus and of the need for additional practice when they are encountered,
- Provide encouragement and opportunity for continued practice until the steps of a given procedure become so automatic that the student can concentrate on the next phase or level of achievement,
- Help to increase the student's understanding of the task.

If plateaus are of long duration, it may mean that improper habits have been formed. For example, students may try to learn subject matter beyond their potential ability, or the instructor may not be giving the needed assistance and motivation.

Emotions (such as fear, hate, and boredom) may cause plateaus in learning because the students' minds are not free to concentrate on the subject matter being learned. Instructors and teacher's aides must be conscious of such possibilities.

INDIVIDUAL DIFFERENCES IN LEARNING

To understand individual students, two truths must be recognized:

- First, they are all different with individual motivations and abilities;
- Second, to a large extent, teachers are unaware in what way, to what degree, and why, individuals are different.

Each individual is acting and reacting in an environment as seen from his own point of view; hence, each individual student can be understood only through careful observation, thought, and insight. A good instructor or aide should consistently observe, listen to, and try to understand each student. This is especially important for preschool teachers.

In casual thinking about learning and teaching, the tendency is to visualize an instructor and a group of students; the one teaching, the other learning. But, *the teacher and the aide must understand that each individual in the group is having an individual learning experience.* They must decide which students need guidance, encouragement, extra instruction, more practice, or more challenging assignments.

In short, all people connected with instruction must come to understand each student as a unique person and this knowledge must help to determine the approach and method to use in the teaching procedure. This is one reason why large classes in many public school settings are not very successful.

The differences in students are remarkable. They differ in physical characteristics - height, weight, length of legs, color of skin, eyes, hair, size of the head. They also differ widely in their mental abilities, their interests, keenness of their senses, emotional stability, muscular coordination, and backgrounds. As a result of basic aptitudes, training, and experiences, they differ widely in what they have learned and in what they can do.

Aptitude. *Aptitude* refers to what a student may eventually be able to do. A student may have an aptitude for park work, but may not be able to utilize a simple hand tool because of lack of training. *Aptitude then, is the capacity to learn; it is the potential for built-in characteristics that can be developed through training and experience.*

Ability. When teachers utilize aptitude tests, of which there are many types, they are attempting to measure or predict what a student can do with proper training. Aptitude refers to latent or potential ability. Ability refers to what can actually be done, as constrasted to aptitude. It refers to what a student can do after he receives training. *Ability means demonstrated performance after training and over a period of time.*

Achievement. *Achievement refers to the present; it is acquired ability.* When a student receives a high grade on an examination, this is evidence of achievement as measured by his instructor's standards. A good aptitude test given, perhaps years before the training program, would have predicted the student's performance.

Reasons for Non-Achievement. When an aptitude test predicts success but achievement does not occur during training, it is usually because of the student's lack of interest in the subject matter, the instructor's methods, and perhaps other factors that affect what the student does with his aptitudes.

If a student receives high evaluation in Social Studies but not English, this may signify a difference in his aptitude for the two subjects. However, it may indicate that one teacher is doing a better job than the other. It may also be that one instructor uses more difficult evaluative devices than the other. All of these factors must be considered in understanding the progress or lack of progress of any individual student.

Physical Differences. Teachers, and others involved in the learning process, should be aware of physical characteristics and learning. Physical characteristics, such as the shape of the head and brow, the size and shape of the nose, and color of skin, in themselves do not determine the individual's aptitude for learning. They may, however, have an affect on how the student learns in some situations.

Some characteristics may cause the student embarrassment and prevent him from fitting in naturally with the group. This, in turn, may result in emotional reactions that have a significant effect on learning. *Unfortunate social experiences caused by the reaction of others to the student's physical characteristics or home background sometimes lead to learning or behavioral difficulties. It is critical that all people involved in education be alert to the possibilities of this happening, and be able to promptly take whatever action they can to help the individual fit into the group in a normal way.*

It should be pointed out that most preschool training programs are composed of children with very diverse interests, backgrounds, and abilities. Preschool training programs tend to be action oriented and involve the learning of a great many skills. Physical characteristics such as size, strength, visual acuity, manual dexterity, etc., can, to a very large extent, influence a child's performance.

Sexual Differences. A student's sex, to a limited extent, will also affect the rate of learning in some physical education programs. In addition to the obvious physical differences between male and female students, there are other differences. Men usually test higher in mechanical things. Probably most differences in male and female students, except in physical strength and related characteristics, are due to training and experience. This is not to say that females should not or cannot perform physical work. It does mean that females, in a training program together with men might require a somewhat different *learning situation* than would be given to the males.

Training and Individual Differences. In all training, it is necessary to contend with built-in individual differences in students. Training will not erase the differences in individuals who have different aptitudes and different achievement levels. In fact, training usually causes a noticeable difference between students regarding achievement.

Experience and research indicate that the student with the greatest aptitude for the job is able to do the work better at any stage in the program. He can also learn more from whatever training he receives. Training will improve the performance of every individual in a classroom program, but it usually has the greatest effect on those who have consistently demonstrated good achievement.

THE LEARNING ENVIRONMENT

The learning situation, or environment, can and does affect the process of learning. The nature of an effective learning environment can be illustrated by the description of two contrasting preschool programs.

Environment of Confusion. In the first program, there are groups of children pushing their way around a few congested areas. They are crowded in front of the tool room and the garden plots. There is the quiet sound of voices in a reading class. Next to the reading class, there is a noisy arts and crafts area.

A preschool teacher moves from one child to another, taking garden tools out of each child's hands. He performs a quick task and gives hurried instructions to his aide. Wherever he stops, a group of children crowd around to ask what they should do next.

No one seems to have the materials needed for the task. A reading instructor has seven children watching him explain a point by illustrating on a piece of notebook paper. Equipment and chairs appear to have been left outside during bad weather.

A staff member stops to comment about the heat of the day and the lack of ventilation. He says the classrooms are too dark in the early morning or evening for classes. The children just don't care to learn anything.

Environment of Pre-planned Order. The second preschool program presents a different picture. There are open areas with designated and separate spaces for quiet and noisy activities. The few small classes visible are spaced to ensure a minimum of distraction. Each child in the reading class has a chair and a notebook. The instructor has a portable blackboard. Now the children can easily see what their teacher is doing.

A group of children going to their garden plots are carrying their tools and looking forward to playing in the garden. The senior preschool instructor is reviewing with the several staff members how they can assist in the next hour's instruction. It is evident from the children's actions that this atmosphere is common. Later observation in the garden reveals that several plants are in different stages of growth. A child proudly explains to a visitor how he grew his own plant. The children are busy and happy. There is little evidence of wasted time.

What makes the difference in the two programs? A review of the techniques of management and the arrangement of *preschool oriented learning facilities* provides much of the answer:

Classrooms - It is best that rooms be well ventilated. It is often desirable to have the window or door open prior to a class. Prearrange chairs according to the type of instruction planned, and be sure that chairs, desks, tables, etc., are clean. Arrange materials of instruction neatly on walls and on bulletin boards.

Tools and Materials - In an effective learning environment, tools are available to the children when they need them. Common tools used frequently by children are at locations where they work; large tools are kept in a toolroom. The types of tools used are simple, basic, and safe for young children. The method used to store and maintain the tools is a result of discussions with the staff and children; the children are responsible for the tools they use.

Less Distractions - Care is exercised to prevent noisy discussions that might interrupt classes. Instructors are called from their classes only in the event of an emergency. Classes in progress are rarely moved because it causes distractions. When there are unavoidable disturbances, such as repair work that must be done nearby, the instructors are prepared with additional teaching methods (i.e., sketches, problem solving, or individual work).

Location and Accessibility of Preschool Facilities - Chairs, tables, water fountains, and toilets must be the appropriate size for children. Toys should be stored within easy reach of the children. Equipment in a preschool must be accessible to the children. The specific location of gardening or other facilities depends on the training site and the program.

Meal Periods - Meal periods are a time of learning too. The staff should eat with the children whenever possible. Young children learn much by observing, and good table manners can be taught this way. Accidents will happen during meals; and should be the cause of as little scolding as possible. Children must learn to associate meal periods with positive feelings.

Rest Periods - After the noon meal is a good time for a rest period. Young children need to sleep. While older children (5 to 7) may not need to sleep, they can be encouraged to rest or relax by reading, or other quiet activities.

RELATIONSHIP OF SCHEDULING AND LEARNING

Scheduling is the process of making the best use of all the different elements that make up a training program: instructors, aides, students, work loads, equipment, supplies, and space. Good scheduling leads to economical uses of these factors to facilitate maximum learning.

In public-school programs, it is not desirable to lay down or follow rigid rules for scheduling. Two programs, identical in purpose for the same school district, will not necessarily have the same schedules. Such things as availability of equipment, classroom facilities, staff variables, and student levels are never the same. Teachers and aides should be aware of some of the fundamentals of scheduling, which are useful as guidelines when drawing up, or modifying, schedules. These fundamentals include:

Relationship of Theory to Application. There should be a definite planned relationship between theoretical work and application. Theory is necessary to provide the student with a basic understanding of the practical work, and to provide information necessary for applying judgment as the practical situation changes. It is usually best to teach theory first, and to follow immediately with practical work, spacing the theoretical instruction throughout the program.

Pace of Instruction and Learning. A major scheduling problem concerns the decision of whether to cover a great deal of material or to cover less material and provide for more discussion. Teachers are frequently under pressure to include the maximum amount of subject matter for each hour in the schedule. The time allowed in the schedule for putting newly acquired knowledge into practice and thereby strengthening the learning by doing is frequently challenged by those who wish to expose the students to a great amount of material in a short time. There is no satisfactory solution to the problem.

However, *teachers and aides should remember that research has strongly indicated that students can learn more when less material is covered.* Schedules crowded with lectures, demonstrations, and field work often result in little learning, since not enough time is allowed to digest and apply the material.

Breaks and Study Periods. Occasionally in public schools, two or more hours are combined into a longer period by eliminating the normal break between periods. The advantages to this approach result primarily in providing large blocks of time for instruction that requires more than a one-hour period. It is argued that there are large amounts of time lost due to the starting and stopping of instruction for the break period; and this may be true if large amounts of equipment are put away after each short break. Of course, this situation is easily remedied in a well structured program.

Students should receive a break of approximately ten minutes for each hour of instruction. Breaks given on the hour have a definite training significance in that more may be learned, digested, and retained.

In addition, they should receive at least one hour of study time for each ten hours of instruction. It is recommended a distinction be made with the students regarding the difference between study time and free time. The former is a period for study, reflection, or discussion, while the latter is just what it implies: free time.

Excessive Scheduling of Time. Excessive hours of instruction are wasteful of student and staff energy and do not increase learning. It is doubtful if students can concentrate for more than eight instructional hours per day.

There are, of course exceptions to this which occur when students are performing practical activities in addition to classroom work. With the stimulus provided by practical work in public-service programs, it is sometimes possible to have an instructional day of ten hours.

Instructional weeks should not extend beyond 50 hours. Exceeding this time limitation leads to morale problems with the staff, a lessening of student learning and retention, and increasing physical debilitation with each extra week for everyone involved in the instructional process.

Time of Day and Learning. Some consideration should be given in scheduling to the fact that student learning is accomplished more easily at certain times of the day than at others. This will vary with individual trainees, some of whom work better in the evening, while others do their best work in the morning. In general, however, the best learning results are obtained when the most detailed and difficult activities are scheduled in the morning.

The period of time just after the noon meal is not usually satisfactory for showing films or lectures.

Experience suggest there are other time considerations that are important for scheduling. Students can only work for short periods on very difficult assignments.

STUDENT LEARNING ACTIVITIES

- Prepare a personal definition of what human learning means to you.
- State at least three examples of trial-and-error learning.
- View and discuss filmstrips *School Skills for Today and Tomorrow*, and *How to Take a Test*.
- Compare the advantages and disadvantages of learning-by-observation with learning-by-doing.
- Define positive and negative transfer in learning, and give examples of each.
- View and discuss films on learning: *Alice: A High School Junior*, *Keith -- A Second Grader*, and *Learning about Learning*.
- Listen to sound filmstrip *How to Study* and be prepared to discuss learning afterwards.
- Explain how individual differences in learning ability can affect learning.

- List some possible explanations for plateaus in learning.
- In small groups, discuss how the learning environment can affect learning performance.
- Debate the following statement: *Class scheduling has little, if anything, to do with effective learning.*

TEACHER MANAGEMENT ACTIVITIES

- Encourage each student to prepare a personal definition of what human learning means to him.
- Discuss with students examples of trial-and-error learning.
- Show filmstrips: *School Skills for Today and Tomorrow*, and *How to Take a Test*. Discuss learning skills afterwards.
- Ask students to discuss the advantages and disadvantages of learning-by-observation with learning-by-doing.
- Have students define and list examples of positive and negative transfer in learning.
- Show and discuss films on learning, *Alice: A High School Junior; Keith -- A Second Grader*, and *Learning About Learning*.
- Show the sound filmstrip *How to Study*, and lead a discussion on it.
- Divide the class into small groups to discuss individual differences in learning.
- Explain learning plateaus, and have the students list possible reasons for them.
- Have the students discuss how the learning environment, or situation, can affect learning performance.
- Have the class debate the following statement: *Class scheduling has little, if anything, to do with effective learning.*

RESOURCES

School Learning: An Introduction to Educational Psychology, D. P. Ausubel and F. G. Robinson; Holt, Rinehart & Winston, 1969.

Learning About Learning (Movie, 16mm, reel, rental), Indiana University Press, Audio-Visual Center, 1970.

Instructional Design, Jerrold E. Kemp, Fearon Publishers, 1971.

School Skills for Today and Tomorrow (Filmstrip, purchase), Society for Visual Education, 1969.

Readings in Educational Psychology, J. M. Seidman, Houghton Mifflin Company, 1970.

Transfer of Learning, Henry Ellis, Macmillan Company, 1965.

Transfer of Learning: Robert F. Grose and Robert C. Birney, American Book - Van Nostrand Reinhold Company, 1969.

How to Study (Sound filmstrip, purchase), Classroom World, 1970.

How to Take a Test (Filmstrip, purchase), Society for Visual Education, 1969.

Keith -- A Second Grader (Movie, 16mm, reel, rental), Indiana University Press, Audio-Visual Center, 1970.

Alice: A High School Junior (Movie, 16mm, reel, rental), Indiana University Press, Audio-Visual Center, 1970.

Unit 3

THE DISADVANTAGED STUDENT

Here are the contents of Unit 3 of the Education group. We suggest a careful reading of it before you read the text.

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Unit 3

THE DISADVANTAGED STUDENT

INSTRUCTIONAL OBJECTIVES

1. Ability to describe special needs of students who are likely to be disadvantaged in a regular classroom.
2. Ability to understand causes of the educationally disadvantaged student's difficulty in school.
3. Ability to recognize problems in skill development which the disadvantaged student is likely to have in school.
4. Ability to observe and evaluate classroom events from the viewpoint of the educationally disadvantaged student.
5. Ability to suggest ways in which a teacher's aide might assist disadvantaged students in the instructional program.
6. Ability to perform semi-instructional tasks and to prepare supplementary materials related to helping disadvantaged students overcome a handicapping condition.
7. Ability to appreciate the challenge and worth of teaching disadvantaged students.

CONTENT

INTRODUCTION

Each September, in classrooms all over the nation, students and teachers from relatively affluent backgrounds meet children from their own communities who are poor; or whose skin color, dress, or ways of speaking are different; or whose life styles and attitudes do not conform with the *mainstream* of American life. These children, while neither superior nor inferior to most children, are different from them and have their own special problems and needs. In the eyes of the teacher, these children are seen as different. They are the *disadvantaged* students in the classroom.

Children whose homes and cultural backgrounds are not in the mainstream of middle-class America may get very little out of a traditional American education - unless new approaches are used to try to understand and provide for their special needs. The use of teacher's aides is one of the special services designed to help bridge this cultural and socioeconomic gap. Young people working in this new kind of classroom job can help in many ways to meet the special needs of the disadvantaged student. By assisting with the tutorial and semi-instructional tasks, the teacher's aide frees the teacher to give more attention to individual students.

This unit explores reasons for some of the problems (and their causes) disadvantaged students have in school, and suggests approaches for helping these students, with answers to such questions as:

- Why do some students appear to be *unteachable?*
- What causes behavior deviations in classrooms that make it hard for teachers to accomplish an instructional program?
- What are some of the things the teacher's aide can do to assist the teacher to reach the goals of a program?

SPECIAL PROBLEMS OF THE DISADVANTAGED STUDENT

Entering School. When a child enters school at the age of five or six, he has passed through a formative period of his life, and many experts believe that his personality is fairly well established. That personality is made up of a number of different things: the way he talks, the things and people he likes, what he thinks he can do, what he laughs at, and the things that make him sad or afraid. When he walks into the classroom for the first time, away from the support of friends, family, and home, his personality and his sense of himself are all he has to rely on.

What may happen to the disadvantaged student in his first days at school? He may find that what is expected of him, the way he is supposed to act and speak, and the way people think, may be quite different from what he has known at home. The teacher may want him to talk, act, and understand things which are totally unfamiliar to him. He may even be criticized or scolded for not meeting these strange and sometimes threatening demands.

Feelings about himself. Feelings of shame and inferiority, bred by the pain of being different, may decrease his ability to relate to teachers and fellow students. He may make a connection immediately between things that are different about him and things he is criticized for. The disadvantaged student may interpret any small failures he has during the first days in school as a personal attack on him and his family. The anxieties fostered by the demands of being two kinds of person at once - one kind at home and other at school - are difficult for a young child to understand.

Language and Communication Skills. Confrontation with the conflicting demands of home and school is likely to occur first in the area of speech. *The development of a child's speech is closely tied to the development of his mental capacities and his cultural background.* Learning how to form sentences and learning how to think are believed to be part of the same process. As a child grows and matures, the growth of his intelligence is shown in the expansion of his communication skills. He learns to communicate and express himself by testing words and sentences on his family and friends. The words and sentences that work - that are accepted and responded to - are the same words that become part of his thought processes.

The words and sentences that work in the home of the disadvantaged child may be very different from those that are accepted and responded to in the classroom. Certain grammatical constructions and figures of speech that are commonly used in his home may be accepted or scorned by the teacher. On the other hand, the formal or textbook English he is required to use in the classroom may not be accepted in the home. Teachers may be really shocked and offended by deviant words spoken in the classroom. A negative reaction to his language from teachers and classmates may seriously affect a young student's self-confidence, leaving him ashamed to ask or respond to questions in the classroom. Speech problems might result, such as expressing his resentment of the teacher who humiliates him by deliberately using language not familiar or acceptable to the teacher.

A young child whose first words in the classroom receive no response or are rejected outright may retreat completely from contact and participation. Thus he becomes a problem for the teacher, who may already have too many students in the classroom, too few supplies, too much paperwork, and too little time to spend teaching even the least troublesome students. A child who withdraws and apparently refuses to learn may not get the individual attention he needs to bring him back into the group. Thus, at the age of six, the child may already feel that he has been put aside, and left (in his mind) with the prospect of ten or twelve years of school to *get through* until he can legally dropout.

Tardiness. The matter of communication skills is not the only area where the disadvantaged child is likely to encounter a school-home conflict. Other behavioral patterns and attitudes established at home may not get a favorable reception in the classroom. For example, a deprived child is likely to run into trouble almost immediately over the concept of being on time.

The so-called middle-class home generally runs on a schedule. The typical middle-class child has specific times set in his day for eating, sleeping, and playing. He knows that getting things done on time is very important to his parents and, because he wants to please them, he tries to be punctual.

The daily life of the economically disadvantaged child probably has not been so closely supervised. Both his parents may work, and for much of the day he may be left on his own. Naptime may not be observed, and bed and mealtimes may vary from day to day. Some experts on child care feel that this sort of freedom may be good for a child, teaching him responsibility, how to plan ahead, and so forth. But it may not be adequate preparation for the often rigid schedule of the classroom.

To the child who hasn't previously been required to be on time, punishment by a teacher for tardiness may seem to be out of proportion to the offense. Thoughtless disciplining of the late-comer - whose tardiness may be the result of many conditions at home - can add to his confusion, fear, and lack of self-confidence.

Tidiness. In addition, most teachers think it is especially important to maintain order and tidiness at all times. Structure is very important in their minds. They are likely to be pleased with students who keep their desks, notebooks, and supplies neat, and equally displeased with students who do not. But children who do not have many possessions of their own to care for before they start school may not have a chance to develop the habits of neatness and care of personal property that the teacher will demand.

In many American homes, a child is taught to be tidy and to take care of his possessions. If he has not been taught these habits and skills, it is not the child's fault if he cannot do what the teacher expects. He is likely to think that the teacher's disapproval means he is being rejected because of his background. The teacher, on the other hand, may believe that the student is being willfully disobedient by deliberately challenging order in the classroom. Each resents the other, and neither will give in. Communication, let alone teaching and learning, is difficult under such circumstances.

Lack of Interest. It is not only in such behavior as speech, promptness, and neatness that many teachers find the disadvantaged child deficient when compared with the *model* pupil. Even when open conflict does not take place, some teachers still find it hard to communicate with some students. There are a number of reasons for this, but the one heard most often is that such children are indifferent or hostile to the classwork, learning little and testing poorly.

Why hasn't the school curriculum been able to reach the student with learning difficulties? It is certainly not because he is inferior or unable to learn. Is he simply not trying? Is the teacher at fault? Or is the curriculum inadequate?

Education does not begin in the classroom. By the time a child reaches school, he has learned a great deal and has formed basic attitudes and assumptions about the world around him. At school, these attitudes and assumptions will be either reinforced or challenged - by books, teachers, and other students. *If the set of values generally accepted in school is very different from the one at home, the student may be in for some difficult times.*

Consider the Dick and Jane reading primers that are used in many classrooms. They picture happy *white* children and their pets living comfortably in the suburbs and enjoying themselves in a setting of green lawns and tree-shaded streets. What is a child brought up in an urban ghetto or on an isolated Indian reservation going to think of these stories and pictures? Will these stories have the same meaning for the disadvantaged student? They certainly don't reflect anything he can identify from his own experience; he may never have seen the kinds of houses and neighborhoods that are described and presented as typical.

Even very young children may wonder why the crumbling tenements, the leaking roofs, and the jobless fathers that he knows about are not found in this classroom picture of American life. Dick and Jane's father leaves every morning for work wearing a suit and tie, and it never rains on their freshly painted, white house. It may appear to a young black child, for example, that it is because Dick and Jane are white that their days are so carefree. For many reasons their life, in the book, appears to have little to do with his - why should he read about them?

Because many of the books that are read in school do not reflect his life, the disadvantaged child is not likely to show the enthusiasm and interest about learning to read that a middle-class child often feels. Also, he may not have been read to, or been given prereading picture books before he entered school, and thus will need more preparatory work than the child who has had these experiences.

Unfortunately, the teacher may not have the time or training to give such a student the extra help and motivation he needs. Expected to read before he is ready, this child finds it a hard and often painful activity. If he doesn't quickly make up for the disadvantage of little early reading exposure, he will soon be labelled a *nonreader*, or a reading problem, and placed in a class of children presumed to have the same difficulties. This can only have self defeating consequences for the disadvantaged child.

Intelligence Tests and Grouping. Most schools group students by ability to some extent. Groupings are usually made on the basis of IQ tests; ability grouping is still an accepted practice. Teachers claim that a class of students with similar abilities is easier to teach, that it can move ahead as a group without straining the slow student or boring the bright one. On the other hand, opponents of the system say that it is unfair, because it evaluates students according to unreliable test scores and tests which are culturally biased.

What about the validity of test scores? Do they really measure what they claim to measure? IQ tests measure a student's level of academic development compared to standards established by averages of a typical group. The individual is then compared to this reference group. There is no standardized test in general use that accurately measures his potential. Yet IQ test scores are generally used for this purpose. Moreover, the tests use questions that are supposed to be understood equally by anyone, no matter what social or economic group he comes from. But, in reality, most tests are based upon the culture of the white middle class. Thus, a student's score on such a test depends partly on his familiarity with middle-class culture.

What is the result? Students from disadvantaged backgrounds often are inaccurately evaluated as low in intelligence and ability, and are placed in nonacademic or special groups where their opportunity for equal education is quite limited. The injustice of this is easy to see. The schools are not offering many disadvantaged children a real opportunity to escape from poverty. *Children who fail in school all too often grow up to be jobless adults whose own children have an even smaller chance to improve their life style.* The schools must take the lead in breaking this cycle.

Reactions to Teaching. Most children have already learned a great deal by the time they enter school. Learning happened naturally and easily before school, with television playing a significant role in this respect. When the child enters school, he may find that a totally different kind of learning is going on. He may not feel comfortable with the structure of school learning. There is a hard edge to it - the threat of failure and the fear of not measuring up. In many classroom situations, instead of learning, *he is taught*. He is not moving out toward knowledge; instead, it is presented to him as a member of a class. If he cannot absorb it in the way it is presented, he may not have a chance to try it a different way. In most instances, the instruction is not individualized. He cannot draw back and try to approach the lesson from a new angle; he cannot start from an earlier point and go more slowly. The disadvantaged student is expected to learn at the rate of his school class. Somehow he must open up and receive it; yet it will never be truly his as it would have been if he had reached out for it and expanded naturally toward it.

The unnaturalness of learning in this way is often expressed in visible actions. The student fidgets in his chair, chews on a pencil, looks out the window, talks loudly, shuffles his feet, and shows other signs of real discomfort; the teacher will perceive this as inappropriate behavior. The student cannot sit quietly and digest what the teacher is offering, nor can he get up and leave the class. But he will not be forced, gently or with threats, into quietly receiving knowledge from the teacher's lectures. In small and large acts of defiance, he asserts himself against the school. He ignores the teacher or, as he grows older, he may threaten the teacher physically, because he cannot be *made* to learn, and he wants the teacher to know that.

Other students will usually accept a lesson quietly and with little apparent difficulty. Only later does it appear that the student has not really learned the lesson well enough to use it. For example, a pupil who gets 100 percent on a spelling test cannot spell the same words correctly in a composition. Another who has mastered the sing-song recitation of the alphabet cannot answer the question, *What letter of the alphabet comes after Q?*, without singing through the letters until he finds the answer.

When they are marked wrong or criticized on their performance, these students are very resentful; they think they have been tricked or treated unfairly. They know the lesson as it was presented, and, to prove it, they can turn in another perfect performance on the spelling test and sing the alphabet straight through without a mistake. What more is necessary? To these students, classroom learning is like a game of *catch*. The teacher passes the lesson to the student; the student catches the lesson and throws it back to the teacher on demand. The lesson seems neither real nor important to the student; to him, the exercise of catching it and passing it back unchanged is what school is all about. Such a student wishes above all to be accepted by the teacher. He tries to play by the system's rules in order to gain that acceptance and avoid conflict.

In contrast, *the rebellious student sees conflicts as opportunities for self-assertion.* He tends to define his own interest as completely at odds with the goals and values of *the system* and the teachers, policemen, and welfare workers who are its representatives. He gains self-esteem by fighting against what he interprets as the attempts of that system to put him down or treat him unfairly. In every confrontation with authority figures, he feels threatened and hostile; he feels that to give in and play the game would signify weakness and defeat.

- Can the middle class communicate, through the public schools, with students such as these?
- Can the student be convinced that school is a relevant and worthwhile activity?
- How can teacher's aides help improve the quality of education for disadvantaged students?

The balance of this unit is devoted to an attempt to answer these questions.

TEACHERS' AIDES IN NEW APPROACHES

The public schools can use teachers' aides in many ways to help meet the special needs of the disadvantaged student. The situation requires not simply more classrooms and teachers, but totally new approaches to educating the disadvantaged. Teacher aides can play an important part in implementing these approaches.

Improving Communications. Teachers and school administrators will find difficulty in communicating with disadvantaged students unless they are able to understand the life of the deprived child. Books such as *The Autobiography of Malcolm X* might well be valuable source material for all instructional personnel dealing with disadvantaged students. The churches, shops, music, and speech of the ghetto are as foreign to the average teacher as suburban shopping centers and tree-lined streets are to the child of the slums. Both teacher and student must know, understand, and appreciate the whole picture of the American community.

Teachers' aides can help build a bridge between teacher and student. If the aide comes from the same neighborhood as the students, he can help the teacher understand and communicate with them by interpreting verbal expressions, describing local personalities, and by pointing out neighborhood problems the teacher doesn't know about. The aide can tell the teacher that Kenneth, the quiet boy who never pays attention, gets up at 4:30 a.m. to deliver papers in order to supplement his mother's welfare check. The aide can help the teacher understand the people behind the faces in the classroom; why they act the way they do; what their fears and joys are; why they seem resentful, unresponsive, or afraid.

A teacher aide who relates to the students outside of school is accepted more readily than the teacher from another part of town. The aide is one member of the system with whom they can talk and who understands their viewpoint. In addition, they may well be proud of the aide as an example of how a person from their own background can succeed.

Students who know the aide from the neighborhood may try to challenge the aide's authority, and the first days in the classroom may be complicated by attempts to get the aide to take sides against the teacher. Thus, *the teacher's aide must be an expert negotiator, well aware of the limits to his authority and freedom in the classroom. He can interpret classroom problems and complaints, but his value in the classroom is lost if he rebels against the authority of the teacher.* As an employee of the school, the aide is responsible for following the instructions of the supervising teachers. Aides who find that they cannot get along with a teacher should be transferred rather than risk the possibility of open conflict in the classroom. Such insubordination would persuade the students that the system is not responsive to their needs.

Monitoring Health and Nutritional Programs. Many schools are cooperating with the public-health departments in programs to meet health and nutritional needs of students. Educators realize that a hungry or sick child cannot possibly do his school work as well as if he were properly fed and healthy. Much of the listlessness and inattention that teachers see in children is caused by unmet health and nutritional needs. These needs can become so severe that mental retardation and physical handicapping will result if they are chronically neglected.

Teachers' aides can help to implement and administer these health programs. There are records to be filled out, students to accompany to the nurse or doctor for shots and examinations, and parents to be consulted for permission to examine and treat their children. These tasks are usually done by the teacher. Most teachers would appreciate assistance in these tasks, and teachers' aides are often the answer. Under the teacher's supervision, the aide can prepare each student to participate in the prescribed program.

In addition to medical programs, some schools have free meal programs. Students from poor families receive lunches (and sometimes breakfasts) free, or for a small fee. These programs require some paper work, which the aide can help do.

He can also discover those eligible children who are not receiving the free meals, and give this information to the proper authorities.

Establishing Confidence in the Students. Because of fears fostered by segregation and unstable home lives, many disadvantaged children enter school with serious emotional problems. Instructional personnel should be extremely patient and understanding with these students, encouraging them to express themselves and gradually providing them with new experiences and ideas, even if this means providing special services. Disadvantaged children, perhaps more than any others, need to feel that they are liked and appreciated for themselves. They are likely to think they are failures as people if their work is not as good as it should be. Thus the teacher and teacher aide should emphasize *success*, congratulating and praising the child for what he gets right, rather than rebuking him for his errors.

Establishing Trust in the Students. The disadvantaged student's reluctance to trust the middle-class world, to believe that it will deal any differently with him than it has with his parents, is hard to overcome. It is possible, however, to create an atmosphere in the classroom that is flexible enough to accommodate this student, and prove to him that the hours spent in school need not be a waste of time.

Establishing this trust takes time, and most teachers simply haven't enough hours in the day to give the required individual attention to each student. This is why teacher's aides can be so helpful. Well-trained aides can assume many of the time-consuming tasks that take teachers away from the business of teaching. They can take attendance, mark papers, distribute materials, and supervise daily activities. Under the direction of the teacher, aides can work with small groups of students in many helpful ways, while the teacher works with individual students or moves from group to group, giving particular attention where it is needed most. The aide may work with a student who is having particular difficulty with his lesson, offering encouragement, smiles, and affection to help him get over his fears. Even when not actually instructing, the aide can help the pupil gain the self-confidence that is a necessary first step toward being able to learn in school.

Making the Curriculum More Relevant to the Students. If a teacher of educationally disadvantaged students listens to the people in his classroom, he cannot help being aware of the conflict and hostility in their lives. Many teachers try to ignore this aspect, and to create a classroom environment that will be like an island of peaceful intellectual efforts in contrast to the squalor and poverty of the street. But if the students cannot bring the reality of their lives into the classroom, they are not likely to take the peace and poetry of the classroom home with them after school.

Free discussions about local conditions, discrimination, and poverty (if conducted without rancor or hostility) can bring the conflict into the open, where it can be examined and turned to productive ends. Teacher and student can become real people to each other, involved in the same concerns, and able to talk freely. Hostile young students can be led, under thoughtful and understanding leadership, to see possibilities in a system that had seemed completely closed and inflexible.

One of the best ways to bring the real world into the classroom is to use teaching materials and topics of study that are part of that world. Teachers and teacher aides can collect and distribute reading materials on topics of general interest. Teachers can also ask students to write their own books. *36 Children*, a book listed in the Resources Section of this unit, describes the success of students in a Harlem school who listed their experiences at the request of their teacher. It also includes some examples of their work.

Schools need material on minority groups in American history courses. In most school systems, the rich and fascinating history of Afro-Americans, Indians, Asians, Mexican-Americans, and others in this country, is barely touched upon, the entire emphasis being given to the saga of the Anglo-Saxon founding fathers. To tell the whole story, many teachers need to do independent research, and to prepare supplementary materials to make up for the gaps in standard texts.

Teachers' aides can help the teacher prepare this supplementary material. The aide can assemble teaching bulletin boards and other audiovisual materials; reproduce supplementary maps, texts, and charts; locate books in the library; and play tapes and records the teacher thinks are relevant. The aide might also help the teacher set up a classroom library of paperback books that are of interest to the class.

Making the Curriculum More Interesting to the Student. In addition to bringing new topics and learning materials into the classroom, instructional personnel should experiment with other ways to make the standard curriculum more interesting and appealing to the disadvantaged student.

For instance, many educators say that disadvantaged students prefer practical studies to abstract and conceptual work. This means that such students are more likely to show interest in *learning to do* something than they are in *learning about* something. While it is not always true, this observation seems to suggest that disadvantaged students need to accomplish set tasks, and to see concrete results come from their efforts.

The indifference often shown by disadvantaged students toward such subjects as classical literature and history presents a problem to the teacher. Should he put Dickens away and concentrate on mystery stories? Or should he assign the Dickens and get through it somehow with those members of the class who show at least some interest? Too often, the problem is resolved unsatisfactorily by limiting the curriculum to basic education: the three R's, and barely adequate vocational training. Thus, the schools produce another generation of citizens whose meager educations have prepared them to fill only the same jobs and social positions available to the uneducated.

The good teacher will not take the negative attitude of his students toward the "so-called" *finer things* at face value. Realizing that they need realistic and achievable goals and regular reinforcement and success, he will adjust the curriclum to meet these needs.

Instead of requiring the whole class to read undesired texts and take periodic exams, with occasional book reports and essays thrown in for variety, the teacher can create three-dimensional subject areas, offering something for everyone. Taking a certain text or skill as the goal, he can suggest a number of different ways to approach that goal.

Some students will want to devote their time in class to quiet reading and individual research on the subject at hand. Others will want to be more active, doing projects and experiments. A certain common body of knowledge and experience will be expected from everyone, but each student can go beyond that common knowledge in the ways that interest him most. The students will find that they need and want to learn basic material to use as tools in pursuing their special interests, but the final exams become (for many) secondary goals in contrast to the self-fulfillment and satisfaction of following through on their own projects.

Encouraging Special Interests of the Students. Above all, the good teacher will be alert to the interest shown by the class. He will recognize when he is boring them or cannot hold their interest, and he will adjust his teaching accordingly. He can encourage the students to make suggestions for additions to, or changes in, the curriculum. He can offer them a choice of their suggestions and allow the class to group itself into smaller units to pursue special interests and projects.

Expressing a special interest and a desire to learn about a certain thing may be very difficult for a disadvantaged student. He may not be accustomed to having his questions answered, and may feel very vulnerable and afraid of being rejected. Thus, any spark of curiosity in a usually unresponsive student deserves special attention from both the teacher and the teacher aide. Even if his curiosity is about something not usually included in the lesson plan, the student can pursue his interest as a special project on his own in class.

By encouraging the student who wants to move away from the class to follow a special interest, the teacher can direct his negative attitude about the standard course of study into a productive channel. His hostility toward the teacher may make him work all the harder to prove that his low achievements are the result of only the boring stuff he is usually asked to do and not based on a lack of ability.

When the disadvantaged student is encouraged and supported, his eagerness to follow up on his interests may produce work that shows better reading and writing ability than either he or the teacher expected. With new confidence, his former hostility may decrease, revealing that it was a defensive reaction against the fear of failure. Now that he recognizes he can really learn something, he is ready to believe that time spent in the classroom can be relevant and worthwhile.

The classroom where many students are enthusiastically engaged in individual and group projects at the same time is not going to be a model of neatness and discipline. Activities such as role-playing, writing plays, and constructing models are noisy and hard to supervise. The teacher who encourages activities like these needs a lot of help in order to avoid being bogged down and forced to return to a more rigid format. Teacher's aides can give that help.

THE AIDE'S CONTRIBUTIONS IN SUMMARY

Well-trained teacher aides can have remarkable success with disadvantaged students. The appropriate blend of training and background will prepare aides to recognize and understand the special problems of children brought up under conditions different from those of the typical white middle-class American child. Teacher's aides can help the teacher understand and deal with these problems, while freeing him from many time-consuming tasks. *The aide's contribution of energy and ideas will give the teacher time to teach, enabling him to try new approaches and reach many students whose needs require more individual attention than he is now able to give.* The work will not be easy, but the aide can help make a big difference in the quality of education his school offers.

STUDENT LEARNING ACTIVITIES

- Write your definition of a *disadvantaged student*.
- Describe an instance in your own childhood when you felt disadvantaged as a student - the causes, your reactions, and the results - as you remember them.
- Note ways in which the television programs you have seen might be interpreted by a disadvantaged student.
- Analyze a traditional American folk tale or song (e.g., *Little Black Sambo,* the story of Custer's last stand, the *Star Spangled Banner*). How might a disadvantaged student react to the words and ideas depicted?
- Interview a student not in this class who you consider to be disadvantaged. What are his needs? What is being done to help him? What do you think should be done?
- Decide which of the classes you have taken was the least relevant to you. Why? How could it have been made more relevant? Did you do well in the class?
- Select a *simple* fact or idea that you might teach to a student who could not read well. How would you help him learn about this subject?
- Select a topic relating to an important person or event from the history of a minority culture. Evaluate information you can find about the topic in your school resource center or library. List other supplementary materials you might develop on the topic.
- Learn how to help keep health records and accounts for free meals given to disadvantaged students.
- Debate the following statement: *Lack of direction breeds self-reliance.*

TEACHER MANAGEMENT ACTIVITIES

- Have students write their definitions of the *disadvantaged student.*
- Discuss with the class problems of children from homes where English is the second language.
- Discuss with the class examples of IQ test questions which illustrate why intelligent children who are not from a middle-class American background may score poorly on some items.
- Encourage students to compare the amount of help and direction their parents give them in preparing for school and in other activities.
- Have class members debate the statement: *Lack of direction breeds self-reliance.*
- Have students participate in role-playing situations, such as a teacher aide attempting to break down a communications barrier between student and his math instructor.

- Provide opportunities for individual study projects to develop supplementary material to teach about the history or literature of minority cultures in America.
- Have students report to the class on programs for the disadvantaged. Discuss ways in which these programs have (or have not) helped improve the quality of education for the disadvantaged.
- Invite the school nurse and dietician to tell the class about health and food programs for disadvantaged students. Show the class how aides may help with administering these programs.

RESOURCES

The Disadvantaged Learner, S. W. Webster, ed., Chandler Publishing Company, 1966.

They Have Overcome (Sound filmstrip, purchase), Warren Schloat Productions, Inc., Pleasantville, New York, 1972.

Compensatory Education for the Disadvantaged: Programs and Practices-Preschool Through College, Edmund W. Gordon and Doxey A. Wilkerson, College Entrance Examination Board, 1966.

Preparing to Teach the Disadvantaged: Approaches to Teacher Education, Bruce W. Tuckman, and John L. O'Brian, Free Press, 1969.

Teaching the Disadvantaged (Sound filmstrip, purchase), National Education Association, 1967.

Teaching Deprived Kindergarten Children (Filmstrip, purchase), Teacher College Press, 1969.

36 Children, Herbert Kohl, New American Library, 1967.

Up the Down Staircase, Bel Kaufman, Prentice-Hall, 1965.

TEXTFILMS AVAILABLE FROM McGRAW HILL

Operation Head Start (16mm, black and white) Bailey.

Portrait of a Disadvantaged Child (16mm, black and white)

Portrait of the Inner City School (15mm, black and white)

Unit 4

INSTRUCTIONAL METHODS

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Unit 4

INSTRUCTIONAL METHODS

INSTRUCTIONAL OBJECTIVES

1. Ability to identify the criteria for selecting methods and materials of instruction.
2. Ability to formulate a reason for using different types of training aids and devices.
3. Ability to define the functions of an instructor lesson plan.
4. Ability to understand how to develop a simple instructor lesson plan.
5. Ability to demonstrate a knowledge of how to write a lesson plan through practical exercises.
6. Ability to use instructional methods in preparing an instructor lesson plan.

CONTENT

INTRODUCTION

This unit will deal primarily with the materials, methods, and equipment for instruction. A generalized discussion of instructor lesson plan preparation is included within the general framework of instructional methods. Individuals planning on working in schools or agencies responsible for preschool, elementary, or secondary education, should find this information useful.

The first part of this unit will deal with instructional materials that can be used in education today, and criteria for their selection.

SELECTION CRITERIA FOR INSTRUCTIONAL MATERIALS.

A wide variety of instructional materials are used in modern public-service education. Some of the materials represent broad approaches to meet the usual training needs; others are more narrow in scope, and have been developed to meet special training requirements, or to improve subject matter presentation. Within the broad framework of the public-school system, materials of instruction should be used to increase learning and to facilitate student skill development.

Whether considering instructional methods or materials, the questions of *cost* and *profitability* are of primary concern.

Cost. Materials, such as lesson handout sheets, may appear to be inexpensive, since a single person can prepare them in a minimum of time with little equipment and then present the handout sheet to large trainee audiences. Computers on the other hand, may be too expensive to use at the present time.

Profitability. However, when considering profitability, it becomes clear that what is learned by each student, and whether or not that learning can be transferred to future career experience, must also be added to the formulation. If the handout results in no behavior changes or in undesired changes, it must be regarded as an unprofitable training material. And if, on the other hand, the computer enables many students to learn efficiently, it *may* be profitable to use it.

It is the infrequent event when cost and profitability factors are considered in the evaluation or selection of instructional methods and materials. However, educational accountability is becoming increasingly important in American education today. Indeed, it is critical that teacher's aides or administrative aides do not overemphasize cost, which is a relatively easy measurement criteria, as opposed to the complete consideration of accountability. The latter includes consideration of both cost and precise answers to questions aimed at determining the contribution of the methods and materials under consideration. *Accountability measures the accomplishment of educational objectives.*

Evaluating Profitability. The profitability and accountability of instructional methods and materials may be evaluated by such criteria questions as:

° Does it fit the *readiness level* of the students who will use it? This is particularly important in preschool programs.

- Does it help develop conceptual and/or actual skills?
- What are the objectives of the methods and materials?
- Is the material accurate and up-to-date? The real world is changing very rapidly. The classroom must reflect this rapid growth.
- Does the content of the material coincide closely with the type of education for which it will be used?
- Does it help the student to understand why certain things are better than others?
- Are the students allowed to explore their attitudes and feelings?
- Does it emphasize creative use of knowledge and problem solving rather than learning by rote?
- Does it help the student to recognize intended outcomes of his study?
- Does it contain or suggest ways by which the student can measure personal success in attaining certain goals?
- If it is an instructional material in text form, is it readable, comprehensive, and pleasing to the eye?
- Does it make integrated use of appropriate materials and subject matter, or is it just showy?
- Is it within the cost considerations for one's local budget?
- Will the material form the basis for career-related activities?

Need of Objectivity. Teachers and teacher's aides should also be aware of the need to establish a rationale for selecting the appropriate methods and materials of instruction required. Most instructional methods and materials, whether books, films, tapes, role plays, videotapes, or others, have vigorous defenders who become so emotionally involved that they see the method as a cure-all for an entire program. This is unfortunate, since each has its advantages, disadvantages, and limitations for particular educational purposes. The teacher's aide must learn to be objective in chosing materials.

TRAINING AIDS AND DEVICES

Any subject matter is taught more effectively through the appropriate use of instructional materials. There can be a great waste of time, effort, and money as a result of the improper use of materials of instruction. Teacher aides should not accept, without careful evaluation, such statements as: *85 percent of learning takes place through the eyes*. Obviously, the amount a student learns through his eyes depends on what is being learned and the conditions under which the learning takes place. *There are times when one picture is worth a thousand words, but this is not always the case*!

A competent instructor uses all of the instructional materials and devices available in an expert fashion when they are needed. The use of training aids or written materials of instruction should be used only when they help to teach the right things effectively.

Types of Training Aids. There are various types of training aids. For example, for preschool programs, training aids are usually in the form of a game, piece of equipment, graphic representation, or illustration that helps the child to learn. Experience in public school programs, however, suggests that training aids are classified into these five types:

- *Visual training aids* - Chalk boards, posters, bulletin boards, displays, models, silent films, slides and other projected transparencies, and flannel boards.
- *Auditory training aids* - Radios, all types of recordings, and tape recorders.
- *Audiovisual training aids* - Aids which make use of both sight and hearing, such as sound motion pictures, videotape, sound filmstrip, and closed circuit televisions.
- *Synthetic training devices* - Devices or models built to simulate the action or function of a real device. These are frequently operated by the student and the prime purpose is to *develop feel* or learn *operational habits*.
- *Real life training aids* - Often the best available for use in actual instruction. Students are able to observe and learn more by exposure to *the real thing* than through use of other types of aids.

Characteristics of Training Aids. The greatest value of training aids lies in their appeal to the learner's senses, their ability to attract and hold attention, and their ability to focus student attention on essential elements to be learned at a given time. For instruction in elementary-school-level subject matter, a *mock up* of a device or process, or use of the actual item, is often vastly superior to a simple description. Training aids and instructional devices are usually designed, selected, or constructed by the individual in charge of the learning situation. Teacher's aides often help in this process. *The value of the instructional aid is in direct proportion to its simplicity, unity, colorfulness, flexibility, timeliness, and visibility.*

Training aids have not been effectively used in a wide range of public educational programs. One of the primary reasons for this is that large amounts of instruction employ the large group method, and there tends to be relatively little individualized instruction. As a result, instructional media, such as television, programmed instructional tests or machines, elaborate laboratories of learning, and 16mm motion-picture projections, have not yet been fully utilized.

Properly selected and relevant materials of instruction referred to as *software* are effective in terms of *profitability* and the *philosophy* of public education. In essence, software materials are instructional handouts keyed to the lessons and the skills to be learned. There are several variations and names for such materials, but they are usually classified as either *work sheets* or *information sheets*.

The work sheets help the student to perform a specific task or learn a specific skill. They are sometimes a part of a demonstration, or can be given the student after the lesson to assist in developing the skill demonstrated. Usually, work sheets tell the student how to do a task.

An information sheet gives the student the specific information, the theory, or the background data necessary to perform the work.

TRAINING EQUIPMENT

Specialty preschool equipment. The assumption in this unit, prior to this point, has been that learning based on the use of the method and material selected is transferable directly to career performance. However, most preschool educators recognize that opportunity for children to practice motor skills is also essential to the acquisition of skills. Readings, demonstrations, etc., may precede actual practice, but the opportunity for manipulating a tool, irrigating a garden, or practicing the material learned, is also required and essential.

It is often inefficient, costly, and impractical to train a child with real tools and equipment. However, a certain portion of the training has to be realistic enough to ensure later child transfer of learning, and to also achieve maximum learning in a minimum time period. To a large extent in preschool programs, the types of games, equipment, and tools selected materially affect the amount and rate of child transfer learning in a given time period.

The selection of preschool equipment must meet two main criteria:

° It must be functional and durable enought to actually work;

- it must assist in the learning experience for the child.

For example, toy blocks must be capable of performing a job and still be used as instructional aids.

Preschool training programs differ in scope and content. Consequently, it is impossible to develop a *cookbook* approach to instructional material selection. Experience in the use of preschool equipment for the training of early childhood teachers suggests several questions, such as the following, to give insight into equipment suitability:

- Is it too large and inconvenient to work with or operate?
- Can it be used in small group learning situations? If not, how many are required?
- Is it too delicate or transient to handle or keep?
- Is it too complex for the children to understand?
- Is it too covered or enclosed to permit learners' observation of working parts?
- Is it too difficult to procure locally?
- Is it too expensive relative to this program? If so, can it be rented?
- Is it too dangerous to use around young children?
- Will the maintenance detract or add to the learning situation?
- What other tools or equipment can be used in its place to teach the same skill and/or concept?
- Does the manufacturer have instructional materials already developed?

Student construction of educational materials and devices. The *project method* has long served teachers at all levels as a means for involving students in the subject matter and developing dexterities. The project method is characterized by an individual student or small group of students constructing an educational device or aid. The advantages to this method are:

- It provides the students with intimate knowledge of the working parts and principles of the aid or device under construction.
- It helps the students develop a measure of tool skill and accompanying motor skills.
- Program costs can be offset in terms of rental or purchase of equipment. (However, greater costs may be incurred by the project materials purchased and instructional time devoted to construction.)

- Having constructed an instructional aid or device, the students are better able to modify or adapt its principles to later educational or career experiences.
- Since many students have never experienced a tool-using situation, the project method (when correctly used) is a student ego builder.

The selection of the item to be constructed is critical to the success of the project method. Construction projects used in educational programs should be carefully designed so that the right skills are emphasized to the right extent. A common failure in project selection is to disregard the analysis of the skills and knowledges the students need to learn. Preschoolers, for example, obviously have different needs than do high school students.

The project selected for construction should allow students to develop skills that they do not originally possess. These skills should be those which are necessary to their success in the program.

The finished projects should be useful and used by the students in the educational program. The project development should result in an instructional aid of which the students are proud. In addition, the finished project should be consistent with the known needs and level of educational achievement found in the students involved in the project.

INSTRUCTOR LESSON PLANS - CONCEPTS

Major Part. The planning of a lesson for instructional purposes is similar to any other type of planning. As in preparing to build something, setting the stage for dramatic presentations, surgery, or in any other human endeavor, the success of the plan depends, largely, upon the *forethought* given to the problems to be solved. *It is an underlying principle of sound organization that, to achieve the maximum results, a sound plan of action must be set down.*

There are certain other principles which, if they are expressed in simplified or systematic arrangements of the facts, procedures, or materials required by the project, will produce smooth, appropriate, and meaningful results. It is with the application of these principles of organization to subject matter that this section will concern itself.

This discussion will:

- Establish the appropriateness of using good lesson plans for instructing.

- Identify the plan and its principles with an established format, or arrangement of points.
- Permit an opportunity to practice applying the principles of organization of lessons, or other principles, to this format.

Definition - Instructor Lesson Plan (ILP). *An instructor lesson plan is a guide to the presentation of a lesson. It is an outline of the scope of the material, and of the procedures the instructor intends to follow in presenting a lesson.*

Care must be taken to include all important facts, so that the element of memory (a fickle thing in time of stress) is reduced to the minimum. No point which is sufficiently important to require detailed explanation during the lesson development, should be omitted from the outline. Elaborate explanations can be filled in by the instructor, but should not be incorporated into the ILP.

Functions - Instructor Lesson Plan. The ILP plays a very important role in the instructor's daily assignments. These five major assists (below) to instruction are functions of the ILP; each gives a vital support to the instructor and his aide before and during the presentation:

- Guide to preparation of lesson
- Guide to physical arrangements and facilities
- Confidence builder
- Assurance of uniformity
- An aid to the substitute instructor

Preparation of Lessons. The major role of the ILP is assumed before the lesson is developed in class. An infinite number of factors can improve or weaken the lesson, and many of these must be considered during the preparatory phase, including:

- Subject coverage
- Method of teaching to be adopted
- Location of the classroom
- Training aids
- Special physical conditions which require attention

There is no better place to list these, or mention them, than in the ILP. If they are overlooked until class time, they can defeat the mission of the instruction.

Physical Facilities. Another application of the ILP is the arrangement of the actual physical facilities needed for sound lesson development. Details such as these could be easily overlooked if not included in the Plan:

- Time and location of the class
- Nature of the accommodations
- Personnel to assist the instructor
- Comfort of the students
- Seating
- Ventilation

The importance of checking the physical facilities is revealed in the following example:

"An instructor had planned to use a slide projector. He had informed his assistant of the need for the equipment and slides to go with it. At the time the slides were to be shown, it was discovered that the projector was on hand but the slides were not. The class was too far removed from the source of the slides to get them, so the lesson had to proceed without the training aids." Had the instructor inserted into his own notes, *check projector and slides before class,* he would not have been faced with the embarrassment and confusion resulting from the error.

It is the responsibility of the instructor or his aide to see that all details of the physical environment affecting the lesson period and materials are provided for and, when necessary, included in the ILP.

Confidence Builder. The first few times a lesson is taught, the instructor will probably rely extensively on his lesson plan, in order to insure adequate coverage of the material. With repetition, he will gain confidence in himself by leaps and bounds.

There will be times when the class discussion will veer away from the immediate goal of the lesson. The presence of the lesson plan on the rostrum adds a definite sense of security in such instances. The lesson plan permits the instructor to handle efficiently the questions that arise, and to get back on the track without developing a sense of confused presentation; of having his mind blank-out momentarily; or groping for that which comes next.

Uniformity. Whenever a lesson is taught, the objectives and subject matter coverage should be uniform. This requirement does not, in any sense of the word, restrict the technique of teaching employed by an individual instructor. If the instructor fails to cover the material set forth in the lesson plan, it will be lost as far as the class is concerned.

Substitute Instructor. The substitute instructor is perhaps more aware of the full value of the ILP than the regular teacher. If no written plans have been formulated, a difficult situation faces the substitute, particularly if he had not taught any of the previous lessons in the subject. He is forced to burn the midnight oil in order to discover the relationship and purpose of his lesson to the course as a whole, and to either report to class without sufficient rest, or to try bluffing his way through. The latter course is worse than no teaching at all.

The possibility of leaving wide gaps in the student's learning, and the resultant dissatisfaction aroused with the subject as a whole, leave much to be desired. An ILP prepared by one instructor generally should not be used by another in its existing form. However, it does save considerable preparation time for the substitute instructor.

INSTRUCTOR LESSON PLANS - PREPARATION

The final lesson plan should not be prepared until after all details of subject matter, aids, and other supplements to the lesson are determined. The final basic outline is evolved by careful *dry-running* and revising to achieve the working plan or guide. When a lesson is planned, a systematic arrangement or format should be maintained, to assure that the important elements are arranged in logical order.

Since the function of a lesson plan is to serve as a guide during the presentation, the form in which it is prepared will be affected somewhat by the method of presentation. Obviously, a plan for a practical exercise, or for leading a discussion, will differ in form from the plan prepared for a lecture. However, the basic format from which the other plan may be developed later is the *lecture outline*. The latter type is the one under discussion at present and will serve as a guide for each of the following points.

Every good ILP contains four main points in its physical make-up:

- *Heading* (which includes certain administrative information)
- *Introduction* (which projects the main features of the lesson and the pace)
- *Development* (where the main and sub-topics are listed)
- *Summary* (an opportunity for reemphasis)

Heading - (Administrative arrangements). Instruction generally must be given in common-use classrooms. Training aids, demonstration tools, and projection equipment must be shared with others; and must frequently be obtained from a centralized source not under the immediate control of the instructor or his aide. Last-minute planning for the use of such facilities is inviting disaster.

The first portion of the lesson plan, therefore, should list all the administrative arrangements necessary for the conduct of the lesson, including the aids and equipment that need to be assembled in advance of the class meeting. It should include:

- Name of the subject.
- Title of the particular lesson.
- Time allowed for presentation.
- Method of presentation for which the lesson is designed.
- Objective of the instruction.
- Lesson file number.
- Date.
- Training aids needed.

The time allowed for length of the lesson is usually predetermined for the instructor. It is a factor over which he has little control, but which will influence the selection of the method of presentation. There are definite objectives that must be accomplished in the time available. These must be clearly stated in the heading. At the conclusion of the presentation, each student should be very aware of what has been set up as the minimum standard of achievement.

Introduction - (Setting the stage). The introduction must serve the four purposes listed and discussed below:

- *Tie-in with previous knowledge*. It must relate the present lesson material to a previous lesson, or to earlier related experiences. If a tie-in with previous knowledge is not clearly made, each lesson will remain as a separate entity, and will lose its relationship as a part of the whole. *A continuous train of thought must be maintained*. The sample introduction below shows a tie-in to a previous lesson:

  INTRODUCTION

  In one of our previous classes we covered the planned approach to study problems. We discussed scanning, reading, and studying. But

> remember we assumed that we were expert readers. This is not true. Few people are expert readers. So what good has been all of our training? If you cannot read effectively, how can you expect to study effectively? Today we will learn how to get out of this dilemma. We will become introduced to the Reading Improvement Course and will learn just how to improve our reading. The better we can read, the better we will be able to study all of our subjects in career education in the short time allowed for study.

- *State the objectives.* The lesson objective must be clearly stated. This will motivate the interest of the class, and will also establish a goal in the minds of the students. This is particularly important when stating it for the conference method of instructing. It should be stated in behavioral terms, that is, *the students should have a clear idea of the kind of behavior they are expected to acquire as a result of the instruction.*

- *Motivate interest.* Developing interest at the start of the lesson makes it much easier to hold the class' attention. Each student entering the classroom at the beginning of the period is mentally concerned with his own problems or interests. To shift him away from that pattern into a pattern of attention to the instruction requires strenuous effort by the instructor. Unless the entire group's attention can be focused early on the instructor and his presentation, it will be increasingly more difficult to achieve it later in the lesson.

- *State the purpose.* Motivating initial interest may not be enough. Every class has at least one student whose interest in the subject is a negative one. Many times, one such student can make his indifference so apparent that it produces a parallel indifference in the entire group. To avoid this, *the introduction will include a definitely stated reason for the subject or problem in terms of the individual class member.* It must state why it is important for him to learn all he can about the lesson materials. It must convince him that he needs to know this in order to be able to do his part of the job effectively - the *why* of the job.

Whether the Introduction be in written, or in outline form, is a matter of preference. However, the narrative or written form permits the instructor greater ease in *getting over* the initial few minutes of the lesson, which is usually a difficult stage of the presentation.

Development - (Developing the Action). Once the preliminaries are over, the developing of the lesson material begins. It is in this part of the ILP that the actual instruction takes place, the main points are carefully explained, and the mission of the lesson achieved.

- *Built-in logic*. There is one quality that must be built into the development phase of the lesson plan - *logic*.

  To make each ILP fit squarely into the over-all subject, each plan is tied in to previous instruction.

  Topics and sub-topics that concern one major area are related to each other and should be grouped that way. No topic should be included as an afterthought and placed into the sequence at random. The order of the main point should appear as a simple, easy, natural, step-by-step progression.

  This principle of sequence is referred to as *teaching from the simple to the complex; from the old to the new*. It is the same sort of arrangement used in discussing this lesson on instructional methods.

- *Flow of thought*. To bring each item into a relationship that teaches smoothly, *bridging* is necessary. Transitional statements, which might relate previous subject matter to the following topics must be created to show a close relationship. Too many subjects are taught as clearly unrelated *lists*. It is the responsibility of the instructor to invent an apparent relationship, rather than to permit it to remain a naked series of facts. Such invention need not discolor, mislead, nor misrepresent the facts; it merely produces a pattern which makes for easier instruction and more rational learning.

- *Unrelated facts*. Sometimes it is not obvious exactly where certain points belong in the plan. Instead, they may comprise a series of major elements, each one of equal importance. If no apparent relationship can be seen it is obvious that any order, so long as it is not distracting nor clearly illogical, can be chosen. The instructor must be certain, however, that no relationships can be established, before this *listing* method is used.

- *Student understanding*. It is wise to consider the student level of understanding when devising the ILP. The instructor can more easily guide his approach to the students' minds if he knows how much or how little the class knows about the subject. He must gear his teaching to that level. This involves appropriate vocabulary, *absence of jargon*, and clear explanation of technical terms.

Presentation Helps. In planning the development of a lesson plan, there are two presentation helps which must be considered:

- *Provision for training aids*. Most lessons will include training aids which are invaluable for stimulating and sustaining student interest. Whatever they may be, it is essential that they be included in the ILP. Provision is made for this by requiring that each training aid be *clued* into the lesson plan, at the appropriate time it is to be used. To do this, the ILP provides a marginal space for all kinds of *helps*. Here the instructor finds reminders for using the aid indicated, showing him when to use it, and how it is to be presented. Sketches, designs, formulae, or other factual materials can either be suggested or drawn in full detail, depending upon the skill of the instructor and the need at the time of use. These clues are extremely important.

- *Timing the lesson*. The second item for polishing up the presentation involves timing. It is shown in the left marginal column. Timing is very important and can be checked during *dry-running*.

Each of these presentation helps is needed to furnish the final polishing of the presentation effort. They must be just as well planned as the rest of the development. They must fit into a pattern of sound instruction.

Checking Student Understanding. The instructor has provided for the training aids; he has practiced his lessons, so his timing and sequence are correct; now he assumes that everything is complete, and all that he needs to do is to present the lesson. *This is an error*! If he assumes that all that is required is an ILP, set up according to the pattern just described, he is overlooking one major need: *he must check the understanding of his students.*

So far, no provision has been made to see whether the students might have any questions, or whether their understanding is complete. The ILP, up to this time, has not given them a chance. An opportunity for questions, to clear up any misunderstanding, or to permit additional comments, is a need which can be provided for in the ILP. Such an opportunity may occur at any time during the lesson development.

To make sure that at least one such chance is given, the terms *questions, answers,* and *comments* are written into the ILP at the end of the Development stage of the outline. At this time, students who have questions or comments are urged to develop them. This whole process is designed to give the instructor and his aides valuable *feedback* or information about how well the lesson is going.

Waiting until the end of the lesson may be a deterrent to actual questions. Most questions occur during the development of a lesson rather than at the end. So, to make it more flexible and timely, it is suggested that the instructor incorporate into the ILP a hint or clue to *check understanding.* This may be done at various intervals throughout the lesson. The frequency of its use can be determined by experience, when the instructor will discover which areas of the lesson are most likely to produce difficulty in learning. This feedback process should be inserted at the close of each difficult area of subject matter. The use of this check will firm up the learning which is intended to take place. It is particularly important to use it when the method of instruction is by lecture.

Maintaining Student Interest. Student interest at best is a difficult item to measure. Some external manifestations which can be observed include: restlessness among the students, gazing off into space, reading while the instructor is talking, and dozing.

The good instructor prides himself that none of these instances occur in his class, yet he can never be quite sure of what is taking place in the students' minds, even when they seem to be listening intently. Consequently, some provision must be made to insure that student interest is maintained at a high level throughout the presentation.

Where a demonstration is not included as an essential part of the lesson plan, some other device should be employed. An occasional question directed to one of the students, whose interest appears to be lagging, will serve to bring his attention to a proper focus.

If, however, the interest of the entire group lags, the instructor should look to his manner of presentation. It may be that the instructor has failed to integrate the lesson with the major course objectives. It may be that the lesson is unrealistic. The instructor may have overlooked the level of student understanding and is teaching above or below their ability to grasp the instruction.

The instructor must be alert to the psychological effects of the numerous distractions, which are always present or easily potential, so that when he prepares his lesson he makes at least some mental reservation to that effect. The maximum attention span of the normal individual can persist without interruption for not more than three minutes, without loss of concentration. However, even this span is not the usual experience; too many distractions are always breaking into this period of concentration. In view of this, the instructor must be ready to provide some counter-distraction to restore attention.

SUMMARIZING THE LESSON

In the sequence of developing the lesson plan, the finish is of importance second only to the introduction. The instructor should use the summary as a teaching tool. It has a two-fold purpose: to *review* the important points, and to *tie-in the lesson with the one to come.* Emphasis must be placed on each major point reviewed. This will fix the lesson material firmly in the students' minds. Tying the lesson in with the one to follow will produce a continuous train of thought. This can be done as the final statement of the summary, which should be prepared in this order:

- Objectives
- Mechanical aids
- Results
- Introduce next lesson on, for example, Principles of Instructional Aids

The summary can be developed either by the lecture method, or, if time permits, by the use of questions designed to measure how much the students have learned during the lesson. The question method may reveal an occasional lack of understanding or, even more probably, a shortcoming in the instruction. Thus it can guide the instructor for improving later lessons on the same subject. *Warning: Do not include new or untaught materials, whether omitted from the lesson or not intended for inclusion, in the summary!*

PRACTICAL EXERCISE

Need for Experience in Organizing. A major problem frequently met among new instructors is how to organize material which has been obtained during the research phase of preparation into an effective lesson plan. Most students seem to need a better understanding of the process of organizing subject matter. Therefore, supervised experience in arrangement of subject matter should be a part of the study of lesson planning.

By classifying the material into properly selected topical groupings, the student can be given insight into the application of format and logic. The practice of grouping facts or ideas, so that topical headings become apparent, and the rearranging of these topics into a sequence which seems natural and logical for teaching, is needed by those who have had no training or experience in the organization of lesson materials.

Development of the Practical Exercise. During this phase of the training, great care must be taken to make sure that students understand what they are to do. To achieve this, a set of directions, involving administrative details, must be provided, and be carefully explained.

Good organizing gives insight into the process of thinking and must take place during the planning of subject matter. After this is done, instructional methods will be more effective in the educational process.

CHECKLIST FOR THE INSTRUCTOR LESSON PLAN

° *Does the HEADING include* -
Subject, title, time (length of lesson), method of instructing?
Place, training aids, number in audience?
Instructor's name, file number, date, number of assistants?
Objective?

° *Does the INTRODUCTION* -
Tie this lesson in with previous lessons?
Provide for review where desirable?
Show value of learning this material?
Serve as an interest-arousing factor?
Establish objective of your lesson?

° *Does the DEVELOPMENT provide* -
An outline of new material arranged in suitable form?
Development from known to unknown; from simple to complex?
For state of training of students?
Complete outlines for demonstrations and ground performances, if any?
Periods for checking student understanding?
Examples, illustrations, and devices for clarifying material?
Integration, where possible, with other training?
Directions for use of aids?
Sketches for blackborad work, if board is to be used?
Key questions, desired answers, and other comments?

° *Does the SUMMARY* -
Review important points and state conclusions reached?
Tie-in with lessons to follow?

° *Is the PLAN* -
Screened so that all material points toward objective?
Provided with smooth and purposeful transitions?
In a form that makes it usable during class period?
Practical with regard to time-material relationships?

REVISION OF THE INSTRUCTOR LESSON PLAN

No single instructor's lesson plan will be perfect enough to meet all future situations, regardless of the amount of time spent on the original planning. Conditions vary too much from day to day and from class to class. Likewise, unforeseen weaknesses in the instruction may not become apparent until the students reach the application phase of their training.

The time to revise the plan is when the instructor first becomes aware of deficiencies and omissions. Immediately after a lesson is taught, the plan should be examined with a view toward revision. Notes should be made concerning mistakes, awkward spots, and omissions. Even after a lesson has been taught a number of times, it will be found possible to develop new devices and new training aids that will further intensify student learning. A suggested procedure for revision is to evaluate the plan in terms of the check sheet on the previous page, in addition to such evaluation prior to presentation.

STUDENT LEARNING ACTIVITIES

- List the criteria you would use to select methods and materials for instruction.
- Discuss in small groups the reasons for using instructional aids in the teaching process. What kinds of aids would you use for specific purposes and why?
- View and discuss movies or filmstrips on teaching methods and materials; for example, *Lectures Are a Drag*, *Learning and Behavior (The Teaching Machine)*, and *Introduction to Student Teaching*.
- Write an essay defining the functions of an instructor lesson plan.
- Prepare an outline showing the steps you would use to prepare an instructor lesson plan.
- Read a short chapter in one of your textbooks, and then organize and outline the material so that a logical, progressive outline will be developed.
- Choose a short subject to teach (10 to 15 minutes), and prepare an actual instructor's lesson plan to help you present your lesson. This should include the appropriate instructional materials to help accomplish the lesson objective.
- In small groups, practice presenting the lesson prepared in the exercise above to others. Discuss ways to improve your instructional methods.

TEACHER MANAGEMENT ACTIVITIES

- Have the students list the criteria they would use to select methods and materials for instruction.
- Have the class discuss in small groups the reasons for using instructional aids for specific learning purposes.
- Show and discuss films or filmstrips on instructional methods; for example, *Lectures Are a Drag*, *Learning and Behavior (The Teaching Machine)*, and *Introduction to Student Teaching*.
- Assign an essay defining the functions of an instructor lesson plan.
- Give your students a jumbled passage purposely disorganized, have them read the exercise, and then place the main ideas and supporting ideas in an organized outline.
- Have students prepare instructor lesson plans on topics of their choosing.
- Have the class, in small groups, practice student-by-student, presenting lesson plans to the others. Encourage discussion on ways to improve instructional methods afterwards.

RESOURCES

Individualized Instruction: Its Materials and Their Use, Oregon State Higher Education, 1970.

Selection of Instructional Materials for Children and Young People, American Library Association, 1969.

How to Plan for Student Teaching, National Education Association, 1966.

Instructional Design, A Plan for Unit and Course Development, Jerrold E. Kemp, Fearon Publishers, 1971.

Learning and Behavior (The Teaching Machine) (Movie, 16mm reel, rental), Carousel Films, 1969.

How to Utilize Community Resources, National Education Association, 1967.

Lectures Are a Drag (Movie, 16mm, reel, purchase), Churchill Films, 1970.

Introduction to Student Teaching (Movie, 16mm, reel, rental), Indiana University A-V Center, 1970.

The Library: A Knowledge Retrieval Center (Filmstrip, purchase), Encyclopedia Britannica, Inc., 1969.

The Teacher As a Speaker (Sound filmstrip, purchase), Addison-Wesley, 1969.

The Nature of Educational Method, Jack Rimmel Frymier, Charles E. Merrill Publishing Company, 1960.

Unit 5

BASIC SKILLS IN THE LANGUAGE ARTS

Here are the contents of Unit 5 of the Education group. We suggest a careful reading of it before you read the text.

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Unit 5

BASIC SKILLS IN THE LANGUAGE ARTS

INSTRUCTIONAL OBJECTIVES

1. Ability to understand how reading, writing, listening, and speaking form the basis for developing skills in the language arts.
2. Ability to describe techniques used in the classroom to determine students' reading abilities and to identify their reading disabilities.
3. Ability to demonstrate a knowledge of techniques used in the classroom to determine the readers' perceptive skills.
4. Ability to recognize how writing skills can be taught through the use of familiar comic strips.
5. Ability to become familiar with the techniques used in the classroom to teach appropriate grade level vocabulary.

CONTENT

INTRODUCTION

This unit will assist in the understanding of methods by which students develop skills and abilities in the language arts - reading, writing, listening, and speaking. The teaching techniques described here are modeled after the way learning is observed to take place in most instances - in small and gradual steps or increments. This unit will illustrate this technique in teaching the developmental skills in language arts; not for the purpose of teaching people how to be teachers of language arts, but rather to become aware of how children learn.

THE LEARNING PROCESS

In the Home Environment. Before a child enters school, he learns and acquires skills at a rapid rate. This learning is relatively painless and easy for him. Why is it, then, that this same child - who seems so bright and has already learned so much - may not be able to learn in school? Educators have found this learning disability a very difficult problem to solve. One of the many solutions proposed is to teach him in small, easily manageable amounts.

Watch a very young child looking at a television program. This is not a *difficult* activity for him. Although he may not even understand the plot of the show, he responds naturally to what he is experiencing. He may merely laugh at a picture on the screen. Yet this is the beginning of a learning experience. At present he sees only the funny picture and automatically responds with a laugh. As he grows older, he will recognize characters on the screen and learn their names; when he is still older, he will understand what the plot is, and will be able to follow the sequence of events, and probably predict the outcome of the program he is watching. Notice from this example that:

° The child is enjoying himself while learning.

° He is learning by responding naturally.

° He is responding naturally only to familiar things he understands.

° As his understanding increases, he comprehends more of what he sees, and is eventually able to respond to and comment on stories on the screen.

° Unless the child is handicapped in some way, he will almost certainly learn, because he is absorbing and reacting to what he sees and hears (stimuli) at his own pace and in a friendly and familiar environment.

We observe that the child is really noticing only those elements in the television program that he finds familiar and that bring out a natural response. As he tests his response and finds it to be the right one (for instance, if the adults in the room laugh at the same time as he does), he begins to notice and respond to more on the screen. This is a very gradual process; the child is happy with his response, and, although he does not understand everything, he finds that his responses are proper reactions to what he does understand. At each step toward complete understanding, he takes a small chance by choosing to respond to something on the screen that he has not noticed before. Yet each step is so small that the chance he takes is a source of pleasure to him, because he is almost sure that he will respond properly. The threat of being wrong really does not occur to him, because he is secure in the correctness of his response up to that point.

In the School Environment. When this same child enters school, he finds himself in a new and foreign environment. Instead of being surrounded with familiar people and objects, he is confronted by strangers. He knows that he must learn, yet he quickly discovers that learning in school very often means just coming up with the right answers, and he may develop a real fear of giving wrong ones. A child who feels afraid or threatened can never enjoy school, and unless he enjoys it he can never really learn. This fear often shows up first in an inability to learn to read, and the child who does not read is doomed to partial or complete failure throughout his school years.

Why not make learning to read as enjoyable and natural for this child as learning to understand a television show? That is what teaching the language arts in small steps is all about.

Introduction to Learning. The process of learning in the home can be duplicated in the classroom by using the same technique to design a program for teaching reading. From the reading skills to be mastered, the teacher selects a series of steps (increments) through which each student will progress at his own pace. The first of these steps will call for an almost automatic response from the student; for example, he will be shown a flash card of a familiar object, such as a cat, and he will say the word that the picture represents, knowing that he is right. He will then be shown the word *cat* on the other side of the card, and, because he has been told that the picture and the word he has said are the same, he will feel secure in responding to the written word *cat* on the card by saying the word again.

At this point, he is not yet reading, but he is responding naturally to the idea that letters on a card can have the same meaning as a familiar picture he has identified. He thinks that he is reading the work, just as a young child thinks he is watching television, and, although it may be some time before he will be able to identify the word without first looking at the picture, he has taken a small but significant step in understanding what it means to read.

After he has become familiar with the first step and can do it quickly and easily, the teacher will reverse the procedure, showing him the word first, asking him to say it, then showing him the picture so that he can check his answer. The teacher will use the same set of cards, and the student's familiarity with the way the words look and their associations with the pictures will remove much of the fear he might have about being wrong. The teacher will constantly encourage him by showing the cards he gets right again and again, so he will feel pleased and be willing to take a chance on the harder cards.

Most everyone learns by taking chances on being wrong some of the time. People probably learn more from their mistakes than from those things they always do correctly. But very few people will eagerly take a chance on being wrong in an environment where they feel that they haven't a fairly good chance of being right, or that being wrong is dangerous or bad.

Learning in Increments. Learning is an individual process. Each child learns at a pace that is best for him. For one child, the teacher may have to select a set of steps to present material that another child can learn in half the number of steps. The important thing to realize is that teaching a child in small increments teaches him skills, but also gives him confidence in his natural ability to learn. Once he realizes that learning in school can be as natural as learning to play games on the playground after school, his pace of learning will increase. He will be more willing to take a chance, to respond naturally, and without fear. Each step he takes in mastering skills or knowledge will be larger than the one before it.

Learning with Familiar Materials. A child entering school finds almost everything he sees unfamiliar, and his self-confidence is challenged. The teacher can help the child overcome his fears by making sure that the materials in the classroom are familiar to him; learning works best when the materials are familiar to the students. Realizing that learning is most likely to take place in a familiar environment, the teacher uses pictures, reading materials, and music that the student will recognize from his experience outside the classroom. The student will have more confidence in himself if he sees that there is a relationship between the world of school he sees in his learning materials and the world he faces when he leaves the classroom.

In studying this unit, the materials recommended for teaching are books, magazines, records, and comics that the students have previously seen and used - things of familiarity. The skills to be mastered are best presented in easy steps in a nonthreatening environment that permits the student to see clearly that what he learns can increase his enjoyment of things he is already interested in. *It is the teacher's responsibility to control the challenge that each step presents to the student.*

The teacher will begin to teach reading in a very limited *stimulus field* (the flash cards described above) He will then proceed, individually with each student, to an almost unlimited stimulus field, such as an encyclopedia, in which the student will see much that is unfamiliar to him. If the student can face this large stimulus field without fear of being wrong, and can use his own acquired skills to respond naturally, then the teacher has been successful.

Some educational experts contend that the skills a student must gain to do well in the language arts are not in themselves difficult. It is the learning process - in fact, school itself - and not the subject matter that causes trouble for many students. Incremental learning tries to make this learning process an enjoyable, natural, and effective experience for each student. A major objective in studying this section will be to see how this can be done. Each language arts goal will be explored in a short incremental learning exercise with suggested Teacher's Goal, Teaching Procedures and Materials, Suggestions for Teaching, and Evaluation Check-Out.

LANGUAGE ARTS GOALS - READING

Determining Students' Reading Abilities

Teacher's Goal: To determine and develop students' abilities in:

° *Word Recognition Skills*

To know the names of letters,

To match letters, and

To match capital and small letters.

° *Word Meaning Skills*

To associate pictures with words, and

To identify new words by picture clues.

° *Comprehensive Skills*

To understand that printed symbols represent objects.

Teaching Procedures and Materials: Use this procedure for the introduction to teaching:

° Using colorful pre-primer flash cards, place them one at a time, picture-side up to allow the reader to see the picture clue. Have the student read aloud the word on each card.

° Turn the cards picture-side down. Have the student read them aloud, this time without benefit of the picture clue.

- Repeat, using primer flash cards.
- Spread the flash cards out on the table or desk, picture-side up, and allow the student to arrange them to form a complete thought.
- Repeat this procedure picture-side-down.

Suggestions for Teaching: Create a nondrill-oriented, flexible, nonthreatening atmosphere in the classroom by placing colorful advertisements and interesting articles about show business and sport personalities from magazines such as *Ebony, Time, Newsweek, Sports Illustrated, etc.*, around the room. These items can be taped or stapled to large sheets of white paper or thumbtacked to bulletin boards.

Make all explanations on a small chalkboard beside you and the student. It is essential that you maintain as close a personal relationship with him as possible. For this reason, explain all mechanics of reading on the chalkboard rather than with an impersonal machine with its drill-oriented filmstrips.

If the child does not know the sounds of the letters of the alphabet, use the teaching procedure given above with a box of phonic flash cards.

Rather than giving a standardized test for checking the student's reading progress, use the personalized method of having him read two or three paragraphs from a graded book.

If he begins reading easily, he should still continue through the entire pack of cards. His success in going rapidly through what he already knows as a kind of testing process is a new and exhilarating experience for him and greatly improves his self-image.

Flash cards do not contain verbs. The instructor can write a verb on the chalkboard and help the student understand how it connects the subject with the object of a sentence or complete thought.

Evaluation Check-Out. The student should respond quickly and correctly, pronouncing the sounds of the letters as they appear in the beginning, middle, and end of words. If the reader misses ten words at any given grade level, his reading grade is the next lowest.

If the reader can express thoughts by manipulating existing word cards, he can read the cards. If he does begin reading easily, he should still continue through the entire pack of cards.

Determining the Reader's Perceptive Skills

This teaching unit in language arts is concerned with determining a reader's perceptive skills. The main goal is to understand techniques used in the classroom to determine the reader's perceptive skills.

Teacher's Goal: To determine each student's ability in the following reading skills and help him develop them further:

° *Auditory Skills*

To repeat words of two and three syllables that are pronounced to him,

To know the number of sounds in words,

To hear the differences in words,

To hear the varying lengths of words,

To hear sounds in the beginning, middle, and end of words, and

To hear rhyming words.

° *Visual Skills*

To use pictures as clues,

To recognize colors, shapes, and sizes, and

To observe likenesses and differences in words and letters.

° *Comprehension Skills*

To use correct phrasing when reading aloud (not word-by-word),

To use proper voice intonation to give meaning.

Teaching Procedures and Materials: Let the reader read aloud to you from the *Dr. Seuss* books in the following sequence:

Dr. Seuss' ABC

Hop on Pop

One Fish, Two Fish, Red Fish, Blue Fish

Green Eggs and Ham

The Cat in the Hat

The Cat in the Hat Comes Back

Horton Hatches the Egg

How the Grinch Stole Christmas

The Dr. Seuss books are particularly well suited to this stage in the development of reading skills. The large and colorful illustrations provide an easy transition from the flash card procedure, and the layout of the books is extremely appealing. Elementary vocabulary and sentence structure are presented in a rhyming format that is fun for the student to read aloud, and he can easily learn correct phrasing from the natural rhythm of the sentences themselves.

Suggestions for Teaching: A notebook or chart that you keep confidentially will help you remember the readers' progress and areas of particular difficulty. The personalized, one-to-one approach must be continued. Make a creative effort to engage the students' interest and participation.

Evaluation Check-Out: The reader will learn to do some things easier than he does others. As long as he is reading aloud intelligibly and enjoys the reading, he should be allowed to move on to the next stage of development, even if he has not yet mastered every single objective listed above.

Acquainting the Reader with a First-Grade Vocabulary

The primary objective of this unit of instruction is to understand the techniques used in the classroom to teach the reader in first-grade vocabulary.

Teacher's Goal: To improve the student's vocabulary by developing his abilities in word analysis by these techniques, for understanding and knowing the words in Table 1, and (hopefully) in Table 2:

- *Phonics:*

    To recognize single initial consonants and make their sounds: *b, c, d, f, g, h, j, k, l, m, n, p, q, r, s, t, v, w, x, y, z.*

    To know single consonant sounds at the end of a word (hat).

    To know single consonant sounds in the middle of a word (seven).

    To know names of vowels.

    To know sounds of initial consonant blends: *sh, st, bl, pl, tr, fr, wh, th, ch, fl; cl, gl, sp, sm, an, sw, tw,* etc.

- *Structural Analysis:* Knows endings, such as *ed* as in *wanted, ed* as in *laughed, ed* as in *liked, ing*, and *s.*

    Recognizes compound words, such as *into* and *upon.*

Teaching Procedures and Materials: Allow the reader to read those comic books he desires which bear the insignia of approval of the *Comics Code Authority.* At this level, offer a selection from those published by the American firms of *Illustrated Humor, King Features,* or *Fawcett Publishing Company.*

For an interesting, precisely graded basic reading series, you may want to use either the Harr-Wagner *Deep-Sea Adventures* or the *Morgan Bay Mysteries.* For these specific objectives, the most appropriate would be *Sea Hunt,* grade level 1.8.

Suggestions for Teaching: As he advances from the Dr. Seuss books, the student begins to expand his reading skills to cope with the more standard story format. After he has met the objectives stated for this section, he will realize that he is capable of reading a "real" book or magazine, but he may at first feel unsure of his ability to do so. The absence of rhyme may make reading aloud harder for him than it was in the Dr. Seuss books; the plot and the characters are more complex. He will come across more words that he does not recognize. Offering a wide selection of high-interest reading materials, such as are suggested above, and encouraging him to choose whatever interests him, will help the student to get over this initial uncertainty.

If he seems reluctant to start reading what he has chosen, go over the format of the book with him first, discussing the illustrations and his interpretation of them. Ask questions about the illustrations that will spark his interest in the text. Discuss other aspects of the format, such as how long the story is and how many pages there are in the book. If the child fully familiarizes himself with the book's nonverbal aspects before he begins to read, his first real reading experience is more likely to be an enjoyable one.

While using the chalkboard to explain the mechanics of reading, you should keep a little notebook for personal notes about the reader as well as keeping track of the page number he is currently on.

Perhaps for the first time in his life, the reader has now become involved in a complete book with a plot and characters, some of whom he can identify with. He is now aware that he is capable of completing a book and that, above all, *reading has not been a painful experience for him.*

Evaluation Check-Out: The student should be able to identify the words listed in Table 1, in various settings.

He should also be encouraged to identify the additional words, which are found in six of seven leading primers, as listed in Table 2.

Table 1

Basic Word Vocabulary for First-Grade Readers

a
airplane
an
and
apple
are
at
away
baby
ball
be
bad
big
birthday
blue
boat
bow-wow
cake
call
can
cap
car
Christmas
come
cookies
cowboy
daddy
did
dinner
dish
do
dog
down
fast
father
find
fine
fish
for
funny
get
girl
give
go
good
good-bye
green
his
have
he
help
her
here
hide
home
house
I
in
is
it
jump
kitten
like
little
look
make
may
me
mitten
morning
mother
my
near
no
not
oh
on
one
party
pie
play
pretty
puppy
ran
red
ride
run
said
see
she
show
sleep
something
splash
stop
surprise
table
thank
that
the
to
toy
tree
two
up
want
we
what
where
will
with
work
yellow
you
your

Table 2

Additional Vocabulary Listing for First-Grade Readers

about
again
all
am
as
back
black
boy
but
came
cat
could
cow
farm
from
fun
had
happy
him
his
how
just
know
laugh
let
long
man
many
Mr.
must
new
night
now
of
put
rabbit
sat
saw
so
some
soon
take
them
then
there
they
this
too
us
walk
was
water
way
went
were
when
white
wish
who
yes

In addition to gaining vocabulary skills, the reader should be able to:

- Follow printed directions.
- Verify a statement
- Draw conclusions from given facts (what do you think happened then?).
- Recall what has been read aloud.

- Read silently and recall what he has read.
- Place events in sequence.
- Remember where in the book to find answers to questions he is asked.

Acquainting the Reader with a Second-Grade Vocabulary

The general goal of this unit of instruction is to understand classroom techniques for acquainting students with a second grade vocabulary.

Teacher's Goal: To improve the student's vocabulary by developing his abilities in structural analysis in these word areas:

- Little words in big word (*many*).
- Compound words (*barnyard*).
- Possessive word endings: *'s, s'*.
- Other word endings: *d, ed, er, est, ing, ly, t, y*.
- Contractions: *can't, don't, he's, I'll, I'm, isn't, it's, I've, let's, we've, won't, you're*.

Teaching Procedures and Materials: Let the reader choose whichever of the *Classics Illustrated Junior Comics* he desires.

Offer a selection of other reading materials, such as:

- *Deep-Sea Adventures:*

"Treasure Under the Sea"	2.1
"Submarine Rescue"	2.4
"Pearl Divers"	2.8

- *Morgan Bay Mysteries:*

"Mystery of Morgan Castle"	2.3
"Mystery of the Marble Angel"	2.6

- *Comics Code Authority Comic Books:*

  Dell Publishers

Suggestions for Teaching: Follow the suggestions outlined under the paragraphs concerning the first grade vocabulary. Continue with the individualized approach, encouraging the reader by asking him questions about his silent reading, and by listening to him read aloud.

Evaluation Check-Out: In addition to the vocabulary presented in Tables 1 and 2, the reader should be able to identify the words in Table 3 in various settings.

Table 3

Basic Vocabulary for the Second Grader,
In Addition to the Vocabulary in Tables 1 and 2

after
always
any
around
ask
ate
because
been
before
best
better
both
bring
brown
buy
by
carry
clean
cold
cut
does
done
don't
draw
drink
eat
eight
every
fall
first
five
fly
found
four
full
gave
goes
going
got
grow
hold
hot
hurt
if
into
its
keep
kind
light
live
made
much
myself
never
off
old
once
only
open
or
our
out
own
pick
please
pull
read
right
round
say
seven
shall
sing
sit
six
small
tell
ten
that
their
these
think
those
three
today
together
try
under
upon
use
very
warm
wash
well
which
why
would
write

In addition to vocabulary skills, the reader should be able to:

- Find a main idea.
- Follow a plot sequence.
- Read clearly and distinctly.
- Read with expression.
- Read fluently.
- Understand simple punctuation.
- Read silently without lip movements or whispering.
- Read without head movements.

Acquainting the Reader with a Third-Grade Vocabulary

The main objective of this unit of instructions is to understand classroom techniques for acquainting students with a third grade vocabulary.

Teacher's Goal: To enable the reader to improve his vocabulary further by:

- Refining previously learned skills.
- Identifying root words.
- Learning prefixes and suffixes:

prefixes		suffixes	
a-	ex-	-dom	-ness
be-	in-	-ful	-th
dis-	un-	-less	-ty

- Understanding how to use an elementary school dictionary to find word meanings.
- Understanding and knowing synonyms, antonyms, and homonyms.

Teaching Procedures and Materials: Allow the reader to choose the reading material he desires from the following list:

- *Deep-Sea Adventures*

  "Frogmen in Action" 3.1.

- *Morgan Bay Mysteries*

"Mystery of the Midnight Visitor"	3.2
"Mystery of the Missing Marlin"	3.5
"Mystery of the Musical Ghost"	3.5
"Mystery of Monk's Island"	3.7
"Mystery of Marauder's Gold"	3.9

- *Comics Code Authority Approved Comic Books*

  Gold Key Publishers

- *Classics Illustrated Junior Comics*

Suggestions for Teaching: At this point in his reading development, the reader will display some independence by saying he wants to read silently. Yet, at the same time, he will not want to give up the audience for his progress that you have been providing. It is best to let him read silently for short periods, after which you check his comprehension. When, in your judgment, he can read with understanding and meets your standards, let him advance on his own ahead of the rest of the class. Or, if you wish, you can use him as a monitor to help other readers who have not yet reached his stage of development.

Evaluation Check-Out: In addition to increasing his vocabulary, the reader should be able to:

- Draw logical conclusions.
- See relationships.
- Predict outcomes.
- Read for a definite purpose.
  - -for pleasure.
  - -to obtain the answer to questions.
  - -to obtain a general idea of the content.
- Use a table of contents and index.
- Use maps and charts.

Acquainting the Reader with Fourth, Fifth, and Upper Grade Vocabularies

The main objective of this unit of instruction is to understand classroom techniques for acquainting readers with fourth, fifth, and upper grade vocabularies.

Teacher's Goal: To develop students' reading skills and improve their vocabulary by:

- Reviewing and refining previously learned skills
- Introducing new words in content fields
- Understanding punctuation: Italics, parentheses, quotation marks
- Improving skills in the use of reference materials.

Teaching Procedures and Materials: Ask the student to choose his reading materials from the following list:

- *Deep-Sea Adventures*

"Danger Below"	4.4
"Whale Hunt"	4.7
"Rocket Divers"	5.0

- *Morgan Bay Mysteries*

"Mystery of the Myrmidon's Journal"	4.1

- *Comics Code Authority Approved Comic Books*

  National Publishers
  Classics Illustrated.

Suggestions for Teaching: At this stage of development, the reader will be spending more and more time browsing through other, more advanced materials in the room; he should also be reading outside of class.

You should provide textbooks, pocket books and the other texts previously described, and work with the student to develop his ability to use reference materials, as listed below:

° *The Encyclopedia*

The topics are arranged alphabetically.

Show the meaning of the characters on the spine of each volume.

Compare dictionaries and encyclopedias for the different material each contains.

Students should know names of important children's encyclopedias.

° *Atlases and Maps*

Examine an atlas to find answers to questions on location, relative size, direction, and distance.

Use maps to explain latitude and longitude.

° *Magazines and Newspapers*

Explain their use as reference materials supplementary to encyclopedias, etc.

Use local newspapers to do research on a current event.

° *Timetables*

Practice reading and interpreting schedules.

Practice following directions.

° *Card Catalogues*

Explain that every book has its place on the shelf.

Show that each class of books has its own call number.

Examine cards: author, title, subject.

Locate titles and call numbers of some books.

Give the student the title of a book and ask him to use the card catalogue to find it on the shelf.

Dictionaries.

Telephone Book.

Other Directories.

2

Evaluation Check-Out:

The reader should be able to:

- Interpret story ideas.
- See relationships.
- Identify moods.
- Describe an author's purpose.
- Identify character traits.

The reader should know how to use the reference materials listed above.

Developing Reading Skills Through Single Subject Articles

The goal of this unit of instruction on basic skills in the language arts is to understand how developmental reading and comprehension skills can be taught with high-interest commercial reading materials.

Teacher's Goal: To develop students' reading skills and cross-cultural and ethnic bonds through the use of high-interest, multi-ethnic, commercial reading materials.

Teaching Procedures and Materials:

Review issues of news, sport, music, car, television, and movie magazines, and choose interesting articles from these magazines. They should be chosen to motivate the student to read further into the subject matter in the encyclopedia, biographies, and other books.

Cut out appropriate photographs and pictures to support the articles you have chosen. Keep them intelligible, yet complete enough to convey the main themes of the original stories.

Assemble the materials in this manner:

- Type the story as you have rewritten it. At the introductory level, the type should be as large as possible. If you mimeograph, see that each page prints clearly.
- Tape the illustrations and photographs to the front of manila folders.
- Inside each folder, insert the texts you have prepared, together with any other relevant material, such as the words of songs or copies of interviews or speeches given by the

personality pictured on the cover. Enclose a page of questions on the material.

- Assemble a selection of these folders covering many fields of interest, and figures of fame whom the students will recognize: President John F. Kennedy, President Richard Nixon, Dr. Martin Luther King, The Supremes, James Brown, Wilt Chamberlain, Bill Cosby, Petula Clark, Caesar Chavez, and other famous people.

Ask the student to choose whichever of the articles interests him, and have the student read the story aloud, either by himself or to you.

If the subject of the article is a singer or group of singers:

- Have the student read the words of the song you have included in the folder.
- Play a record by the singer, calling attention to how the words and their meaning are conveyed through the mood of the music.
- You might next lead a discussion of why or why not a particular song has *soul* and whether the music or words predominate, and how.

With a public figure whose speeches are available on record, you might follow the same procedure.

Ask the student to fill in the question sheet included in the folder and discuss his answers with him.

Suggestions for Teaching: When preparing the single article texts:

- *Keep in mind the reader for whom you are preparing the materials.* Generally, the student is more interested in concrete and practical things than in theoretical ideas.
- *Build on the interests of your students;* you must relate the classroom to the world outside.
- *Try to relate your topics to the student's socioeconomic group;* do not preach, prepare moral tracts, or stress values of any one class in preference to values of other classes.
- *Use a word list* when rewriting the material from the magazines. After writing your first draft, go through your material and try to substitute words from the list where possible.

- *Now go through your material again and make the sentences shorter.* Sentence length should vary, but an average of seven or eight words is desirable. Remove unneeded clauses, adjectives, and prepositional phrases.

- *Keep your paragraphs short,* not more than five or six sentences long. The paragraphs should vary in length, but avoid concentrating ideas.

- *Check your material to see how difficult it is to handle.* A readability formula will help. If the readability level is higher than you desire, substitute more words and reduce sentence-length further.

- *Test the material on a sampling of students.* To do this, delete every tenth word and see if the students can supply the missing word.

Evaluation Check-Out: The reader should show progress in his ability to:

- Find the main idea
- Follow the plot sequence
- Draw logical conclusions
- Recognize relationships
- Predict outcomes
- Interpret story ideas
- Identify moods
- Describe the author's purpose
- Identify character traits.

LANGUAGE ARTS GOALS - WRITING

Developing Writing Skills

The goal of this unit of instruction is to understand how writing skills can be taught through the use of such material as familiar comic strips.

Teacher's Goal: To expose the student to plot, mood, tone, character, conflict, climax, and conclusion; and to improve his abilities in interpreting these ideas so that he will be able to write creatively.

Teaching Procedures and Materials: This section on writing skills provides the student with a high interest stimulus field that will encourage him to react in a positive manner. The presentation of the material and the material itself assure that he will want to express his ideas in writing. Learning the mechanics of writing will not only happen naturally through his desire to express himself, but will be painless as well.

Because there is a natural relation between what people see and the words they use to describe it, the student will choose words and organize them into whole thoughts and compositions, according to the way he perceives things. Since this is a matter of individual interpretation and involves degrees of response rather than right-versus-wrong answers, there can be no wrong answer and, therefore, no threat to the student's ego.

Prepare your materials in this manner:

° Bring in a collection of comic strips from the Sunday paper. Choose strips that represent a series of events or actions, rather than those that depend completely on what the characters say in the balloons.

° Begin your collection with a very simple strip, involving one character in a situation that is fairly easy to interpret. Follow this with increasingly more complex selections, showing examples of plot, mood, tone, character, conflict, climax, and conclusion.

° Cut the words out of the balloons and paste the comic strips on pieces of paper. You don't always have to use every block of the strip as originally published, but only those essential to the development of the story line.

Show the strips to the student, in progressively more complicated groups. Ask him to interpret the pictures and to write what he thinks the characters are saying in the empty balloons.

You might find it advantageous to look for situations similar to the following, when looking in the usual comic strips:

° *Nancy:* here the stimulus field is simple; one character does one uncomplicated thing.

° *Peanuts:* this strip has a stimulus field slightly more complex - it includes another character, and the two personalities conflict. This comic strip can be complex because the writer often has to draw a conclusion after analyzing the behavior patterns of the characters.

° *Blondie:* a strip which represents much action and characterization. Dagwood does different things to solve his problem. This is also a complex comic strip, because the writer must analyze numerous behavior patterns.

Suggestions for Teaching: The student is first expected to write only small amounts at a time, but his work should gradually show more sophisticated observation, perception, and detail.

As the student writes his thoughts on paper, be careful not to interrupt his concentration or train of thought with comments of your own. Let him progress by himself from the more simple, concrete pictures to the complex, abstract pictures at the end of the sequence, until he tells you that he has written all he can or wants to. Do not judge his performance by your own standards or comment on it by saying something like, "Aw, c'mon, you can say more than that!"

Review with him his handwriting, his punctuation, and the clarity and completeness of his thoughts. Later, he will be ready to discuss with you what you feel he has missed in the pictures.

If you ever feel you are losing him, then you must pull back and let him go on at his own rate. Perhaps later he will want you to help with suggestions or comments on the pictures and his performance.

You can use the same picture or series of pictures more than once, even with the same student, by suggesting that he concentrate on another character in the picture. You will often find that he has a completely different interpretation of a picture he has already once analyzed. As the student matures, even over a period of just a few weeks, his values also change, affecting his insights and judgments.

Evaluation Check-Out: The student should be able to interpret and write a story or sequence of events including these elements:

- Plot
- Mood
- Character
- Conflict
- Climax
- Conclusion

STUDENT LEARNING ACTIVITIES

- Write a report on how reading, writing, listening, and speaking play a part in defining *language arts.*
- Use student materials and printed matter, as for example, *Ready to Read-Readiness, Easy-Reading Picture Story Books Series, Language Arts,* and *Common Words Book,* to learn different techniques for developing language-arts skills.
- Through independent study with programmed instruction materials, such as, *One-to-One a Practical Individualized Reading Program, Sullivan Reading Program,* and *Sullivan Reading Series,* to explore techniques used to teach developing reading skills in children.
- View films on language arts skills, such as, *Food for Fun, Language Arts Series,* and *On the Difference Between Words and Things.* Discuss the films afterwards.

- Bring in selected comic strips from your Sunday newspaper and in small groups demonstrate how you would use these strips to teach writing skills.
- Prepare a notebook of common words used in first, second, and third grade classes. Include in the notebook any techniques you would use to teach appropriate grade-level vocabulary.
- Outline the techniques shown in each of the sub-units of instruction in this unit. Save these sub-unit outlines for future use as a teacher aide.
- During a language arts class, visit an elementary class and observe the teacher and/or teacher aide.

TEACHER MANAGEMENT ACTIVITIES

- Assign a written report on defining language arts.
- Use printed matter and student materials to teach language arts skills, as for example, *Easy-Reading Picture Story Books Series* (Series 15), and *Language Arts*.
- Encourage your students to read programmed instructional material on developing reading skills, by such material as *Sullivan Reading Program, Sullivan Reading Series,* and *One-to-One a Practical Individualized Reading Program.*
- Show films on the language arts skills, such as, *Food for Fun, Language Arts Series*, and *One the Difference Between Words and Things*. Lead a class discussion after viewing the films.
- In small groups, have the students work on selected comic strips to practice this technique for teaching writing skills.
- Have your students prepare an outline of each of the sub-units of instruction in this unit.
- Arrange to have small groups of students visit an elementary classroom and observe a period of instruction in language arts skills.

RESOURCES

One-to-One, A Practical Individualized Reading Program (Multimedia), Warren Schloat Publications, 1972.

Ready to Read, Readiness (workbook), Bobbs-Merrill, 1969.

Everybody Grows Up, Franklin Wats, 1969.

Silly Sentences (Game), Houghton Mifflin, 1970.

Wild Animals Story Set (Game), Judy Company, 1969.

Language Arts, English and Reading (Sound filmstrip), Eye Gate House, 1970.

Easy-Reading Picture Story Books Series (Series [illegible]), (Printed matter), 1968.

Beginning-to-Read Riddles and Jokes, Follett Educational, 1967.

Adventures in the City, Laidlaw Brothers, 1970.

Projection Reading Program Story Book, Grade II, CENCO Educational Aids, 1968.

AVAILABLE FROM BEHAVIORAL RESEARCH LABORATORY

Sullivan Reading Program, Series I through V (Programmed Instruction Books), 1969.

Sullivan Reading Series, Series I (Programmed Instruction Books), Textbooks 1 through 4, 1969.

Sullivan Reading Series, II (Programmed Instruction Books) Textbooks 5 through 8, 1969.

Food for Fun (Movie, 16mm reel), Stanton Films, 1969.

Moods (Movie, 16mm reel, rental), Indiana University A-V Center, 1970.

Language Arts Series (Filmstrip), 1970.

Projection Reading Program, Grade V, CENCO Educational Aids, 1968.

Fail-Safe, Eugene Burdick and Harvey Wheeler, Noble and Noble, 1969.

Language Arts, John Wiley and Sons, 1967.

How to Use the Library (Programmed Instruction Book), Allyn and Bacon, 1966.

Common Words Book (Workbook), Charles E. Merrill, 1968.

Language and Reality, (Grade 12), Holt Rinehart and Winston, 1966.

On the Difference Between Words and Things (Movie, 16mm reel, rental), Indiana University A-V Center, 1970.

Children Learn the Language Arts, Burgess Publishing, 1966.

Dr. Seuss Beginner Books, Random House (as listed on page 83).

Classics Illustrated Junior Comics, Dell Publishers, Miscellaneous issues.

Unit 6

EDUCATIONAL TECHNIQUES AND MATERIALS

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Unit 6

EDUCATIONAL TECHNIQUES AND MATERIALS

INSTRUCTIONAL OBJECTIVES

1. Ability to identify the functions and characteristics of educational techniques and materials.
2. Ability to prepare materials, bulletin boards, and pictures coordinated with the curriculum and with the current interests and topics of the class.
3. Ability to demonstrate a working knowledge of how to operate various types of audiovisual machine equipment.
4. Ability to value the benefits of using audiovisual techniques and materials as integrated parts of the educational process.
5. Ability to appreciate how educational technology can help enrich and improve the conditions in which human beings learn and teach.

CONTENT

INTRODUCTION

Many new educational techniques have been developed to help both the teacher and learner in the classroom. Some of the newer methods being used in various schools throughout the country include programmed instruction booklets, individual learning activity packages, multimedia learning kits, microfilm, sound filmstrips, videotape recorders, and many other audiovisual techniques and materials. Currently the trend is increasing toward the effective utilization of this educational technology to help make learning more effective and more efficient.

This unit on audiovisual techniques and materials is designed to provide the learner with the basic knowledge of the simpler and more common forms of educational technology. The materials and equipment mentioned in this unit are those with which a beginning teacher aide would most likely come in contact.

INSTRUCTIONAL TECHNIQUES AND MATERIALS

Definition of Instructional Techniques

Instructional techniques may be defined as: *"Any material or device which is used to assist an instructor in the preparation and presentation of instruction, and which expedites student learning."*

Instructional (or educational) techniques and materials contribute more than just an additional means of communication. Educational technology is a central part of the educational process. The teacher works "with" the materials and new educational technologies to accomplish the goals of education. Just as a jet pilot is a part of the airplane system with all its automated technology flying through the sky, the teacher is a part of the educational system with all its instructional technology in the learning environment.

The teacher aide must understand the key role that instructional techniques play in the learning process. Books, blackboards, films, tape recorders, programmed books, multi-media learning packages, and all the other educational technology are not merely "aids," but are major parts of the educational system.

Functions of Instructional Techniques and Materials

They save time. Collectively, the teaching of a 50-minute class to 30 students is equivalent to 1500 man-minutes, or 25 man hours. Suppose that, by the use of pictures to replace words, either in the form of slides, films, charts, or models, a saving in time is effected, amounting to 10 minutes of the class hour; this would mean 5 man hours. This applies only if there is no lessening in learning on the part of the class. The time saved can be used:

- to include other material, thereby broadening the student's background;
- to add more examples to what has already been presented, which will strengthen and support the student's understanding and comprehension;
- to review or test, which will reveal the effectiveness of the instruction and the level of achievement of the class.

They develop understanding. Verbal descriptions create mental pictures which differ widely from student to student, depending upon association background. For example, the description *carbon deposits* presents one picture to a student who has worked or looked inside the cylinder head of an engine, and an entirely different picture to another student who has never done so. By showing the class an actual cylinder head just as removed from an engine block, with the pistons still in place in their cylinders, and with carbon on them, a uniform picture is presented to all students in the group. Understanding of the term includes a mental flashback to the picture.

Likewise, the procedure followed in an inspection is vividly retained from the showing of a film of a simulated or actual inspection, whereas an instructor explaining such a procedure orally would find the going difficult, due again to the various levels of experience in individual association backgrounds.

They create interest. The curiosity which drives humanity on to search and seek, to watch and wait, is one of the strongest motivating factors which the imaginative instructor can employ in making his points. For this reason, audiovisual techniques and materials fit into an area of learning which nothing else can occupy.

The motion picture film is particularly adapted to stimulating curiosity, since action takes place, usually in a form of sequence, and often leading up to an unpredictable climax.

Operational models and actual equipment perform the same function, in answering the question: *How does it work?* Often, the attention of the student is caught by some feature of the audiovisual aid which might otherwise have passed unnoticed - with a subsequent gap in the learning process.

There is a maxim in the psychology of education that *learning takes place best in a slightly favorable emotional environment.* This implies that a certain amount of humor or levity - not overdone - will attract and assist the student in learning. The audiovisual techniques and materials used by the instructor or aide provide an excellent environmental medium in this respect.

The element of humor may be included in some slides, posters, and charts without detracting from the technical information included. In others, what may sound confusing when explained orally becomes crystal-clear when shown on a diagram, with the result that the student says to himself: *Oh, I see it now.* Having achieved satisfaction, he is more acceptable to further explanation. The slightly favorable emotional environment has been provided.

They appeal to the senses. The five senses, - hearing, sight, smell, touch, and taste - can be effectively utilized with well-planned audiovisual aids.

Of these senses, *sight* predominates, and in the great majority of audiovisual aids employed, the appeal is directly to the sight of the student.

In actual practice, sight is not materially more effective, when used alone, than is *hearing*. A combination of *telling* and *showing* produces far better overall results. The percentages in the listing below show the results of experiments carried out under controlled situations. The implication is that a combination of telling and showing is more effective in terms of greater recall of information than either method of communication used alone. This is an important concept for teacher aides to learn.

TELLING VS SHOWING

Method of Communication	Recall 3 Hrs Later	Recall 3 Days Later
Telling Alone	70%	10%
Showing Alone	72%	20%
Blended T. & S.	85%	65%

Figure 1

Other senses have limited applications, but are essential within their pertinent limits. *Touch*, for instance, is essential where any manual operation is to be performed, for the student must gain firsthand knowledge of the *feel* of the action. *Smell* adds to the knowledge gained concerning gases, solvents, and food. *Taste* is the most limited in application - primarily to water and food. It is closely related to smell; for example, when the nose is stuffed from a cold, there is an absence of taste of food.

Characteristics of Audiovisual Techniques and Materials

The effectiveness of an audiovisual aid cannot be determined by its size, complexity, or cost. Regardless of how elaborate or intricate, it still is not a substitute for the instructor.

Remember, one of the primary purposes of the audiovisual aid is to serve as an additional means of communication, and to be an integrated part of the course. However, there are precautions to remember when using audiovisual techniques. *Too many ideas presented at one time, or too much detail on any one audiovisual aid may kill the goose which lays the golden eggs.* To retain the effectiveness, and to eliminate the unnecessary, a discussion follows of those essential characteristics which every training aid should possess.

They Must be Legible. Whatever audiovisual aid is to be used must be seen or heard by every student in the classroom, whether in the front or rear row of seats. Otherwise the audiovisual aid fails to convey the information it contains.

The lettering on all types of visual aids must be large enough to be read with ease by all students in the class. All parts of a three-dimensional aid should stand out clearly. The number of labels or titles on a chart or slide should not be excessive to the point of confusing the reader. Remember, a student views an aid and gets a mental picture which is retained for some time afterward. What he cannot see or discern clearly remains a blank space in his mental picture.

They Must be Simple. The element of simplicity is tied in with legibility. There is a strong tendency for instructors to clutter up their pictures, charts, slides, blackboards, models, or mock-ups, with the last fine point in detail. This detail cannot be remembered by the student, and often the overwhelming amount of details prevents his understanding of what he does see, or causes him to look elsewhere than at the aid.

People are inclined to read columns of newspaper print if the headline catches their eye, but the headline condenses the coverage to a short, terse phrase. The same principle can advantageously be applied to the visual training aid. A series of progressive pictures - each carrying a small portion with its own explanation - is far more effective than one complete picture which is a composite. The same rule applies for models, for training films, and for student handout material.

They Must be Colorful. Psychologists have long known that color has definite appeal. Merchandisers have used color to sell their products, based upon exhaustive tests to determine which colors have the greatest eye appeal. In using color on visual training aids, two principles predominate:

° *They Must Have Contrast.* Where the flow diagram of a piece of equipment is represented, the actual flow should be given a strong color contrast against the remaining background.

This likewise applies to wiring diagrams, and to individual systems for such areas as cooling, fuel, lubrication, etc. Where an operation is depicted, the moving parts being actuated should contrast with the parts which do not move. Just as he is able to recognize the red *stop* and the green *go* of the traffic light, so is the student able to recognize these items which, because of their color, stand out in contrast.

- *They Must Have Realism*. The more nearly the aid resembles the actual object, terrain, or building, the more easily the student, by association transfer, can retain the mental image he has seen. He accepts it because it looks natural. In certain instances the color furnishes the chief bond to realism.

  Substituting actual colors of objects in contrast with black and white pictures, particularly where the major areas are water, vegetation, or landscapes, makes for easier *reading* of the picture by the student.

They Must be Accurate. Now that the essential characteristics of legibility, simplicity, and color have been checked, the content of the aid must be reviewed for its technical accuracy. If even one part of the visual aid is inaccurate, some student is certain to remember that inaccuracy regardless of what is said by the instructor to correct the impression. Once learned the wrong way, this error tends to be perpetuated. For example, the erroneous method of spelling and pronouncing *preventive* has found its way into conversation. It is often the teacher aide's responsibility to double-check all aids the teacher intends to use in teaching a class, to insure that no errors are included therein.

They Must be Manageable. There are two factors to consider in regard to the manageability of audiovisual aids and materials.

- *They Must Have Mobility*. The size and weight must be such that the audiovisual aid can be easily transported from place to place, as fortunately most audiovisual devices are. Some large machines, models, and mock-ups require that they be installed on a permanent basis, in which case all classes where these aids are employed must be held in the classroom or building where the aid is located. This limitation may not be serious, so long as classes do not overlap.

  The time to consider the design of the aid is before it is constructed, rather than afterwards. Frequently, consideration of the mobility of the aid to be constructed will result in design changes to decrease size or weight.

- *They Must be Instructor Operable*. The materials used should be easily manipulated by the instructor during his class. They should not be subject to design weaknesses which might contribute to difficult operation or instability. This also means the equipment should not come apart in the instructor's hands.

  Students are impressed with the ease, or the difficulty, with which the instructor manipulates his materials and audiovisual equipment.

They Must be Durable. Instructional materials are subject to considerable wear and tear. Normal handling and transportation can easily destroy their effectiveness, unless they are properly constructed. Replacement is often expensive, not to mention time-consuming. The aid which is obviously fragile is not likely to be seen by many students during its short life. If outside use is likely, some method of waterproofing is desirable. *The emphasis placed on economy means that the teacher aide should obtain the greatest amount of use at the lowest possible cost from every aid employed.*

They Must be Realistic. The last characteristic of audiovisual techniques and materials to consider is that of realism. If the actual object or situation under discussion can be presented to the class, the learning becomes intensified, and the atmosphere of artificiality is dispelled. This implies that pictures should include the element of background. Representations of equipment operation should show an operator with action taking place. By this method, the student can project himself into the situation, and accepts what he sees more readily.

Scale is another important consideration, particularly on pictorial matter; and the employment of color should not be overlooked. As a rule, training films rate high in realism, and are particularly effective due to this characteristic.

This concludes this section on the functions and characteristics of audiovisual techniques and materials. The following section will deal with some of the more common techniques a teacher aide should be aware of in order to use audiovisual equipment and materials in the classroom.

COMMON AUDIOVISUAL TECHNIQUES AND MATERIALS

Chalkboards and Bulletin Boards

Certainly the chalkboard or blackboard is one of the simplest instructional aids available. Yet, many new teachers fail to use the chalkboard to its best advantage.

The adaptability of the blackboard to all situations makes it indispensable to formal instruction, either in class or out. No other instructional aid is so consistently at hand during the teaching situation.

Good blackboard work doesn't just happen all by itself. It must be planned and rehearsed. As the teacher's aide makes his lesson plans, he should have a number of stock questions to ask of himself. They might run somewhat as follows:

- What part of the lesson can best be emphasized by use of the blackboard?
- What diagrams will best illustrate the difficult points in the lesson?
- What is the best possible arrangement of the material?
- What portions of the blackboard work are best put on the board before class, and which are better put on during the class?

The answer to these questions can be determined by experimenting with the material selected, by placing it on a blackboard, and by sketching the final layout on the lesson plan. The entire problem must be considered in the light of the type and the amount of blackboard space available, the possibilities of conserving time, and whether or not the points will be developed in the class.

As with the use of other aids, it is not good technique to talk while working at the blackboard. Neither is it considered good technique to erase hastily with the hand or fingers. The result is usually a distracting smudge that destroys the neatness of the presentation. The blackboard is a visible voice that substitutes for the audible voice.

Bulletin Board Displays

A good teaching bulletin board display should have the following parts:

- *A headline*. The headline should be bold, attention-getting, clear, and concise. It is usually a statement of fact or a question that is verified or answered by the rest of the material on the board.
- *A dominant element*, something that stands out above all else. It should draw the viewer's eye to the board and should present boldly the message of the display. It usually is larger than any other part of the display.

- *Illustrations* that enlarge on, verify, or clarify the heading and the dominant element.
- *Concise and clear captions* that identify the illustrations.

The teacher's aide should plan displays and display boards well before he begins producing the materials or arranging the board. A good technique is to start by preparing a layout to scale so that the aide can devise an attractive arrangement, experiment with colors and shapes, and consider relative sizes of material. This will insure good composition, unity, good use of color, and proper fit in the desired display area.

Bulletin board displays should be arranged attractively, have unity, be colorful, and show originality. Backgrounds should be nothing but backgrounds. They should be of pastel colors and should not distract from the message of the board. Three colors in addition to the background should be enough; too many colors can be distracting.

One final rule is to keep the board simple. Too much material can be confusing. Present only one major idea. Odd numbers of illustrations are usually easier to arrange than even numbers. Always have a purpose in mind before starting to plan the display board.

Table Displays

Table displays offer an excellent opportunity for presenting real, concrete objects in an organized manner, and children enjoy preparing this type of display. Simplicity, attractive arrangement, harmony between objects, and clarity of the display are important.

Flat Pictures in the Classroom

Teacher aides should recognize the importance of using flat pictures in the classroom. These materials should be related to the current interests of the class, such as holidays, field trips, careers in educational services, and other special events, such as guest speakers or visitors.

Uses. The classroom uses of flat pictures include:

- creating an environment and atmosphere that aids learning,
- making the classroom more attractive,
- motivating students to learn,
- provoking interest or wonder,
- reporting the progress of current events,

- teaching an idea, objective, or lesson, and
- presenting key ideas or impressions that must be studied at length.

Techniques. In addition to the many uses of flat pictures, there are specific techniques of using them. Some of these methods are:

- for specific educational purposes,
- for use in the teaching lesson with specific objectives, and
- for artistic reasons.

Evaluations. Questions to consider in evaluating a picture for classroom are:

- Is the picture suitable or technically correct?
- Does it have a center of interest and is it realistic?
- Are the details clear?
- Does it show relationships?
- Is it effective in color or contrast?

PREPARING AUDIOVISUAL MATERIALS

Lettering Instructional Materials

Teacher aides should become familiar with the basic lettering devices and materials. The following materials are generally available from art supply and drafting supply stores:

Rubber-stamp letters. There are many sizes and types of rubber-stamp letters available. Their advantages are that they are economical, and good for bulletin board captions.

Stencils. Stencils can be made of either interlocking metal or paper, and they come in many sizes and styles. The primary advantages of stencils are that they are economical, and easy to use. Techniques for stenciling include *spraying over*, *tracing*, or *filling-in*.

Speed-ball Pens. There are many styles and sizes of speedball points available. While they are economical and convenient to use, they require considerable practice for proficiency.

Paintbrush. This lettering technique can be very effective, but it is a difficult technique requiring more practice.

Mechanical lettering devices. Mechanical lettering devices include:

- Wrico type plastic stencils with guides, which give a very professional lettering.
- Mechanical scribers, such as LeRoy, also professional looking, although they may be a little more expensive.

Handmade Transparencies

A common instructional technique which teachers' aides need to acquire is the preparation of single or overlay transparencies for projection on an overhead projector. The aides should be able to utilize, for this usage, such audiovisual instructional materials as Ditto-masters, transparencies, films, slides, charts, posters, photographs, models, maps, and pamphlets.

Materials required. The basic materials needed to prepare handmade transparencies include:

- *Ceramic or grease pencils.* These are now available in many types from many sources, and many of them are made specifically for use on transparency materials. Most project a black, opaque image on the screen, but some project the color of the pencil.
- *Markers of many types:* Permanent and water-soluble markers with felt, nylon, or bamboo tips.
- *Acetate:* This can be bought in long rolls, either clear or acetate, that can be attached to the projector, as well as in sheet form in a variety of sizes and thicknesses. One of the least expensive types of acetate material is cleared X-ray film, which can be purchased in quantities for three cents or less, for a 10" x 12" sheet. Colored acetate sheets, plain and adhesive-backed, are also available.
- *Inks.* India ink and special acetate inks in various colors.
- *Tapes.* Adhesive tapes, opaque and transparent, in various colors.
- *Transferences.* Dry transfer rub-off letters, patterns, and designs, opaque or transparent, in a variety of colors and letter sizes and styles.
- *Lettering Devices.*- as previously listed.
- *Other Materials.* Other materials, such as:

    Drawing boards and T-squares.
    Typewriter and reproduction carbon.
    Cut-out silhouettes.
    Transparency mounts.

Method of Preparation. The simplest type of transparency to prepare is that made by hand for temporary use. This can be done by writing or drawing on a piece of clear acetate or plastic with a ceramic or grease pencil, or with a water-soluble felt, nylon, or bamboo marking pen. Frosted acetate can also be used with nearly any writing tool, but the image will not project as clearly as one on clear acetate.

Place the clear acetate directly over material in books or pamphlets and trace the image to be projected. In order to color large areas, it is a good idea to use water-soluble felt pens or special grease pencils that project the color of the pencil lead.

"Thermofax" or Other Heat-Process Transparencies

Material Required. The 3M Company makes many types of heat-sensitive transparency films for preparing transparencies with the "Thermofax" copy machine (Thermofax is a registered tradename). Here are brief descriptions of some:

- *Type 125 Etched Image Positive:* This transparency material produces a frosted white image that projects as a black image on a white background. A colored pencil can be used on the back-side of the transparency to add color to the image. This material is available in 100-sheet packages.
- *Type 127 Direct-Reading Image Positive:* This transparency material produces a black image on the film and projects a black image on a white background. Type 127 is the easiest to read on the projector stage. It is available in 100 sheet packages.
- *Type 129 Tinted Direct Reading Image Positive:* This transparency material produces a black image (similar to Type 127), but on a background tinted red, blue, green, or yellow. It is available in 100-sheet packages of each color.
- *Type 133 Economy Direct Reading Image Positive:* Available in 500-sheet packages only, this is a lightweight transparency material that produces a black image on the film (similar to Type 127), and projects a black image on a white background.
- *Type 128 Color Negative:* This transparency material produces a colored image on a dark background. It is available in 100-sheet packages of silver, red, blue, green, or yellow.

Method of Preparation. The "Thermofax" machine produces transparencies for projection on overhead projectors. This process of transferring original material to heat-sensitive transparent projection material is simple and quick. Although colored materials normally will not reproduce, almost any black and white material can be copied, if the master meets certain specifications.

Make sure that the lines and markings on the original copy are of a mineral-base material: typewritten, commercially printed, mimeographed, or carbon copy; or drawn with a black pencil, India ink, or a type of marking pen that will reproduce.

The master should be on white paper (you may use tracing paper) and should not be larger than 8½" x 11". In order to reproduce text or pictures from a book or pamphlet, remove the pages from the binding.

The "Thermofax" Process does not destroy the original, which can be used over and over again. After preparing or selecting the master, follow these steps to produce the transparency:

- Each sheet of heat-sensitive "Thermofax" film has a notch in one corner. When you place the film over the original, be sure that the notch is in the upper right-hand corner.
- Pass the transparency and the original through the "Thermofax" copy machine, setting the dial halfway between the buff and white settings. The proper setting may vary from machine to machine. If the copy is too light, set the dial for a slower setting; if it is too dark, set the dial for a faster setting.
- As the material comes from the copy machine, separate the original from the transparent copy. The transparency is ready for projection in a few seconds.

"Diazo" Transparencies

Method of Preparation

- Prepare a master on transparent or translucent material. Use India ink, black pencil, tape, or cut-outs of opaque paper or carbon materials. The silver foil that accompanies each sheet of "Diazo" film ("Diazo" is a registered trademark) is excellent for making opaque cut-outs. The cut-outs can be attached to the master with transparent tape. The image on the master should be as opaque as possible.
- Decide the color of the image you desire. Position the master with its image side in contact with the dye side of the "Diazo" film. To discover which side of the film is the dye side, find the notch in one corner. When the notch is in the upper right-hand corner, the operator is looking at the dye side.

- Place the master and the "Diazo" film into the printer so that the light will shine through the back of the master. Expose to ultraviolet light for the required amount of time (usually two to three minutes). Since this time varies with different printers, make tests to determine the proper exposure time.
- Separate the exposed film from the master and place the exposed film in the ammonia container. The operator will be able to see the image develop. Developing usually takes no longer than did the exposure. When the image has developed to the color desired, remove the film from the container. It is now ready to mount and project.

Combination Methods. A combination of two or more of these methods often produces quite effective transparencies for overhead projection.

AUDIOVISUAL MACHINE EQUIPMENT

A teacher's aide should have a good working knowledge of the various types of audiovisual machine equipment. He is expected to assist the teacher in obtaining, setting up, operating, and returning instructional equipment. The aide should become familiar with 16mm film projectors, 8mm film projectors, 35mm filmstrip projectors, 35mm slide projectors, overhead projectors, opaque projectors, tape recorders, photographs, "Polaroid" type cameras, projection screens, and controlled reading projectors. The operation and uses of different audiovisual equipment are discussed below.

The Opaque Projector

Advantages. The opaque projector has many advantages:

- The class pays attention,
- The preparation of materials for projection is not difficult and does not use up valuable classroom time,
- The teacher can face the classroom while presenting information,
- Opaque materials can be projected,
- A wide range of available teaching items can be used: books, magazines, maps, illustrations, three-dimensional materials, student work, etc., and
- The opaque projector can be used for individual and group instruction.

Disadvantages. Likewise, the use of the Opaque projector presents some disadvantages:

- The room must be darkened.
- The Opaque Projector is bulkier than some other projection equipment.

Method of Operation. The operation of the opaque projector is relatively simple:

- The lamp, with help from the reflector, shines light on the stage.
- The projector has a 10" x 10" stage.
- Material on the stage is reflected to the mirror.
- The mirror reflects the image through the lens.
- The lens projects, focuses, and enlarges the image on screen.
- The pointer projects an arrow on the screen.
- The tray is used to project flat materials; a glass plate on the material keeps it flat and protects it from excessive heat.
- The roller, a continuous rubber-tracked device, moves materials, such as study prints, opaque rollers, and long pictures or visuals, through the projector.
- The platen (or stage) projects books, three-dimensional objects, etc.

The Overhead Projector

Advantages. The overhead projector is a daylight projector. The classroom lights are left on while the projector is used, and blackout curtains are not necessary. The teacher does not need to interrupt the lesson to prepare the room for using the projector. The overhead projector has many of the advantages of the chalkboard, but it has neither the dust nor the mess. It remains in the front of the room, and it is easy for the teacher to use while he is sitting at his desk. The teacher faces the class and writes on transparencies that are then projected behind him large enough for the whole class to see. A projected image makes a bigger impression on a student than the writing on a chalkboard.

There are many prepared transparencies available for use with the overhead projector. Teachers and students can also make materials for projections, and can do many interesting things with the transparencies. They can use colors, write on the image for increased emphasis, cover up part of the image for a quiz, expose textual material one line at a time, and use their imagination to respond to the needs of the class. In addition, the teacher's aide can save all the transparencies for future use; the lesson doesn't disappear as it does when the chalkboard is cleaned or erased by accident.

Disadvantages. The disadvantages of the overhead projector do not outweigh its advantages. Although the material used for projection must be transparent, and the cost of commercially prepared materials is relatively high, teachers and aides who use time and imagination can prepare their own effective visual materials.

Moving-Picture Projectors

Teachers' aides should be familiar with the operation features of film projectors. Accordingly, a brief discussion is presented on the sound, mechanical, and optical systems, of one of the most common audiovisual devices - the 16mm sound projector, together with short operational suggestions:

The Sound System. The sound system of the 16mm movie projector has the following components:

- The *sound track* is on the film. On most sound motion pictures, the sound track is along the edge of the film.
- The *sound drum* is a smooth surface for the film to travel over as it receives light from the exciter lamp.
- The *exciter lamp* provides a constant light source to the sound track.
- The *photoelectric cell* picks up the variable light patterns coming through the sound track on the film and converts them to electrical vibrations.
- The *amplifier* amplifies or enlarges the vibrations and sends them on to the speaker.
- The *speaker* changes the electrical vibrations into sound vibrations.

The Mechanical System. The mechanical system of the 16mm sound projector has the following components:

- The *full reel of film*, placed on the feed reel arm.
- The *empty reel*, placed on the take-up reel arm.
- The *drive sprockets* fit into the sprocket holes on the edge of the film and move the film through the projector.

- The *film channel* is a smooth channel for the film to pass through as it passes the aperture where the light shines through the film. The film gate locks the film in this channel.
- The *claw mechanism,* or *shuttle,* brings each still picture in front of the aperture at the rate of 24 pictures per second.
- The *shutter* coordinates with the shuttle to shut out light while the film is being moved.
- *Film loop* - it is necessary to have a film loop above and below the film channel so that the film will not be torn as the claw mechanism draws it past the aperture.

The Optical System. The optical system of the 16mm sound projector has these components:

- The *master projection lamp* generates the light beam to project the image on the screen.
- The *reflector,* behind the lamp or in the lamp itself, concentrates the light from the lamp in the direction of the condenser lenses and the aperture.
- The *condenser lenses* concentrate the light on the film at the aperture opening.
- The *projection lenses* focus the image on the screen.

Projector Operation. The various makes and models of projectors have different threading procedures. Before threading the projector, study the threading diagram inside the machine, and follow it carefully. These two points will help to determine whether the film is properly wound on the feed reel:

- The film should come off the reel in a clockwise direction.
- The picture should go through the projector upside down and backward.

A teacher's aide should understand the *starting procedure:*

- Unpack and assemble the projector.
- Connect the power cord and check for power at the projector.
- Prefocus and position the machine to obtain the proper size of picture on the screen.
- Turn on the amplifier.
- Thread the projector.

- Check the threading by hand.
- Start the motor.
- Turn on the lamp.
- Focus and frame the image.

The teacher's aide should also understand the *stopping procedure:*

- Turn off the light.
- Turn off the sound.
- Turn off the motor (after cooling the bulb).
- Rewind the film.
- Unplug the power cord.
- Disassemble and repack the projector.

Record Player

A record player should be part of the equipment of every primary classroom. Therefore, teachers' aides must be familiar with its operation. This device can be an effective substitute for a piano, and many recordings of music, stories, rhythms, games and songs are available for young children.

Most modern record players can play recordings at three or four speeds: 16, 33-1/3, 45, and 78 revolutions per minute (RPM). Most recent educational recordings are on 33-1/3 RPM discs. The proper needle must be used for each type of recording; the microgroove needle should be used for 16, 33-1/3, and 45 RPM recordings, and the standard needle for 78 RPM recordings only.

Method of Operation. The record player is operated in this manner; instruction manuals with each player may have other suggestions:

- Place the machine gently on the table, open the case, and set the speaker (if separate from player) where all will be able to hear.
- Insert the speaker plug in the speaker jack of the record player (if the speaker is separate from the player), and plug in the power cord.
- Select and set the correct turntable speed.
- Select the proper needle (microgroove or standard) for the record to be played.
- Adjust the tone-arm weight control if necessary.

- Unlock and lift the tone-arm. Place the needle gently in the run-in groove near the edge of the record.
- Adjust the volume and tone controls for the greatest listening satisfaction.

Tape Recorders and Players

Uses of Tape Recorders. The tape recorder and player can be used in many ways in the primary classroom:

- *Reading readiness* - The tape recorder helps make children conscious of the sounds in the world about them. It helps them distinguish between sounds, and enables them to hear their own voices and the way they pronounce words and sounds.
- *Speech correction* - As the child hears the words and sounds properly pronounced, he can compare his own speech and correct it.
- *Developing creative expression* - The child can talk freely to the impersonal and uncritical tape recorder, and thus gain confidence in his ability to express himself.
- *Music* - Music of all types can be recorded and used for rhythm, dance, play, art, and other activities. It can be used as background for rest periods, lunch periods, etc., and to give the child an appreciation for music.
- *Story telling* - The tape recorder is an excellent way to enhance story telling. A pretaped story gives assurance that the story will be told in sequence. While the tape is being played, pictures, chart drawings, flannel-board figures, and puppets can be used to bring the story to life, and to give expression to the students' imaginations.

The Reel-type Recorder. Most school tape recorders are dual-track recorders, operating with tape on reels. Dual-track recorders use the full length of both sides of the tape for recording.

Magnetic Tape Used in Tape Recorders. A knowledge of magnetic tape, with the types, sizes, etc., is helpful to the teacher's aide. Magnetic tape is a long strip of plastic, either acetate or "Mylar" (Mylar is a registered trademark), coated on one side with a thin coating of iron oxide, and wound on reels of different sizes. One side of the tape is glossy and is called *backing*. The iron oxide coating is on the dull side, called the *working* side.

The microscopic bits of iron in the iron oxide coating are nagnetized. When the machine is recording, these bits line themselves up according to the sound vibrations received from a magnetic recording head. Until the tape is *erased*, these iron bits stay in the same position. You can play the tape back through the recorder and hear an almost exact replica of the sound you recorded. The recording can be erased completely from the tape by magnetic methods, and a new recording made on the same magnetic tape.

Magnetic tape can be purchased on reels varying from 3 inches in diameter, holding 150 feet of standard tape, to 10-1/2 inches in diameter, holding 2,400 feet of tape. Most tape used for educational purposes is on five- or seven-inch reels. A five-inch reel holds 600 feet of standard tape, and the seven-inch reel holds 1,200 feet. Extra thin long-playing tape with a "Mylar" base will give one-half again as much, or even twice the playing time. This thin tape, however, may be more prone to break than thicker tapes. The teacher's aide should consider the wear and tear on a tape (as measured by the number of starts and stops) before choosing a particular tape thickness.

Recording Techniques of Tape Recorders. The operating speed of any tape recorder is measured in inches per second (ips). This is the speed at which the tape travels across the recording, play, or erase heads. Most school recorders have operating speeds of 3-3/4 or 7-1/2 inches per second. Some also operate at 1-7/8 ips. The operating speed of the recorder and the size of the reel used will determine the playing time of the recording.

A one-hour recording can be made on a 5-inch (or 600-foot) reel of magnetic tape when the recorder speed is set at 3-3/4 ips. If a 7-inch (or 1,200-foot) reel is used, the aide will be able to record for twice as long. If the speed at which the recorder is operated is changed to 7-1/2 ips, he will be able to make only a 30 minute recording on the 5-inch reel, and a one-hour recording on the 7-inch reel. The quality of the sound reproduction generally increases with the speed of the recorder: 1-7/8 ips is used for voice reproduction only; 3-3/4 ips is sufficient for good voice reproduction and for some music; 7-1/2 ips produces the best reproduction of music.

Method of Operation. The controls will differ on various tape recorders, and the aide should follow the operating manual furnished with the recorder. However, this step-by-step procedure should prove helpful:

° Place the tape recorder on a table with the speaker facing the class. Remove the lid. Remove the accessories (tape, empty reel, power cord, microphone, etc.). Plug the power cord into the machine, if it is not already attached; then plug the cord into a wall outlet.

- Turn the switch to ON. This switch usually controls the tone as well. Set the tape speed control to the speed desired. Switch on the play or forward control to see that the recorder is operating. Return the play or forward control to its OFF position.
- Place the full reel of tape on the left spindle (as you face the recorder). Place the empty reel on the right spindle. The tape should come off the full reel counter-clockwise with the shiny side of the tape on the outside or toward the operator.
- Pull out about 12 to 18 inches of tape and place it vertically in the tape slot. Be sure that the shiny side is toward the front facing the machine. Thread the loose end of the tape on the empty reel. Make a small loop at the end of the tape, to help threading it onto the empty reel. Turn the reel two or three times by hand.
- Insert the microphone in the microphone input jack. It is now ready to record.
- Engage the recording control. To do this, switch on the safety control, which prevents accidential erasure.
- Speak into the microphone and adjust the volume and tone controls using the recording-level indicator as a guide. It is a good idea to record a short section of tape and then replay it to check the volume and tone control before making a long recording.
- When the recording is completed, rewind the tape, using the fast rewind control. Stop the recorder. Now turn on the play control and adjust the volume and tone controls.

Cassette Tape Recorders. Cassette tape recorders and players are becoming increasingly popular for educational use. They are very economical, and require no tape threading. Another advantage of tape cassette recorders is their flexibility for individual study. Many teachers are preparing taped lessons on cassettes, combined with other instructional materials, thus, producing independent listening exercises, or *audio-tutorial programs*.

SUMMATION

The role of educational technology is just beginning to be realized in American education. The teacher's aide should understand the role and purposes of the numerous instructional equipment and materials currently available. He must see that *this new technology is a part of the learning process - an* *integrated part of the curriculum.* Movies should not be shown simply because it is a rainy afternoon and there is nothing to do. Movies should be shown because they are a key part of the program; because they relate to the goals and objectives of the class.

STUDENT LEARNING ACTIVITIES

- ° Write a short essay defining the role of educational technology in the classroom.
- ° Prepare an outline showing the primary functions and characteristics of instructional techniques and materials.
- ° View and discuss such films on preparing instructional materials as, *How to Make Lantern Slides, Lettering Instructional Materials, Preparation of Audiovisual Materials Series (Series 9), Tape Recording for Instruction,* and *Wet Mounting Pictorial Materials.*
- ° In small groups, plan and make a display bulletin board on current topics of interest to your class.
- ° Prepare a flat picture for classroom use. Follow the guidelines herein, and

  Use generous margins.
  Use mounting materials suited to the subject of the picture, and to complement the picture rather than draw attention away from it.
  Use colors that direct attention to the picture rather than to the mount.
- ° Develop your skills in lettering by making letters for use in classroom displays.
- ° Prepare single or overlay transparencies for projection.
- ° With previously-prepared transparencies, use an opaque or overhead projector to make a short presentation to the class.
- ° Prepare the classroom for film showing by:

  Making sure that the room is properly ventilated,
  Arranging the seating and the screen so that all students will be able to see and hear,
  Carrying out the preparations with the least possible interference with other activities going on in the classroom,
  Letting the teacher know that everything is ready for showing and that you can start on his signal, after room and equipment are ready.
- ° Prepare a 5 - 10 minute unit of instruction using the tape recorder (or tape cassette) and at least one other instructional medium; as for example, written instructions, pictures, or overhead projector.

- Visit an audiovisual center (or Instructional Resources Center) and talk with the center personnel about the value of educational technology in the classroom.

TEACHER MANAGEMENT ACTIVITIES

- Have the class prepare an essay on the role of educational technology in the classroom.
- Encourage each student to keep a notebook on instructional techniques and materials showing their functions and important characterisitics.
- Show films on various instructional techniques and materials such as, *Use of Transparencies, Preparation of Audiovisual Materials Series (Series 9), Lettering Instructional Materials,* and *Tape Recording for Instruction.*
- Divide the class into groups and have them prepare display bulletin boards on current events.
- Obtain materials for the class so members can prepare flat pictures suitable for classroom use.
- Have the students practice making letters by allowing them to prepare the classroom displays and bulletin boards.
- Obtain materials for making transparencies, and allow each student to use opaque or overhead projector to present his transparency to the class.
- Allow the students to prepare the classroom for showing films, and have different students actually run the movie projector.
- Have your students choose a short (5 - 10 minute) presentation utilizing the tape recorder and at least one other instructional medium (written instructions, pictures, or overhead projector).
- Arrange to have small groups of students visit the local audiovisual center (or Instruction Services Center) and discuss with center personnel the value of educational technology in the classroom.

RESOURCES

History of Instructional Technology, P. Saettler, McGraw Hill, 1967.

The State of Audiovisual Technology, E. P. Godfrey, National Education Association of the United States, 1967.

Extending Education Through Technology, Selected Writings by James D. Finn on Instructional Technology, Ronald J. McBeath, Ed., Association for Educational Communications and Technology, 1972.

Technology and the Management of Instruction, Robert Heinich, Department of Audiovisual Instruction, 1970.

Audiovisual Methods in Teaching, E. Dale; Holt, Rinehart and Winston, 1969.

Audiovisual Instruction (S), Center for Applied Research Education, 1969.

New Dimensions Through Teaching Films (Movie, 16mm reel), Coronet, 1970.

The School Library: Facilities for Independent Study in the Secondary School and Study Carrels: Design for Independent Study Space, Education Facilities Laboratories.

The School Library as a Materials Center, Marg H. Mahan, (ed.), U.S. Office of Education, 1964.

How to Use Audio-Visual Materials, Association Press, 1969.

Planning and Producing Audiovisual Materials, Jerrold E. Kemp, Chandler, 1968.

Use of Transparencies (Movie, 16mm reel, rental), Holt, Rinehart and Winston, 1970.

Films Available from Indiana University Audio-Visual Center

- How to Make Handmade Lantern Slides (Movie, 16mm reel, rental), 1970.
- Lettering Instructional Materials (Movie, 16mm reel, rental), 1970.
- High Contrast Photography for Instruction (Movie, 16mm reel, rental), 1970.
- Preparation of Audio-Visual Materials Series, Series 9 (Movie, 16mm reel, rental). 1970.
- Tape Recording for Instruction (S) (Movie, 16mm reel, rental), 1970.
- Wet Mounting Pictorial Materials (Movie, 16mm reel, rental), 1970.

The Audio-Visual Equipment Directory, National Audio-Visual Association, Fairfax, Virginia (annual publication).

Unit 7

TESTING AND EVALUATION

Here are the contents for Unit 7 of the Education group. We suggest a careful reading of it before you read the text.

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Unit 7

TESTING AND EVALUATION

INSTRUCTIONAL OBJECTIVES

1. Ability to plan a program of evaluating pupil growth and development.
2. Ability to become aware of specific evaluation methods directly related to scholastic performance.
3. Ability to become familiar with some of the instruments of evaluation and the standards by which they are established.
4. Ability to learn how to administer a test or battery of tests.
5. Ability to demonstrate a knowledge of different scoring devices.
6. Ability to discuss and use different grading systems.
7. Ability to understand the difference between *normal curve* evaluation and *criterion referenced* evaluation.
8. Ability to recognize the basic strengths and weaknesses of educational tests and evaluation techniques.

CONTENT

INTRODUCTION

With the increasingly important role being played by teachers' aides in the classroom, there is a real need for them to understand basic concepts of educational testing and evaluation. *The term evaluation refers to the summing-up processes in* *which value judgments play a large part, as in grading and deciding when to promote students.* The teacher's aide should be able to help the teacher plan a program of evaluating pupil growth and development. It is important that the aide understand that the proper use of *measurement (the administration and scoring of tests)* permits an approach to education based on child development - rather than the rote approach, which is based on subject matter to be learned or memorized.

This unit will deal with these two closely related functions, educational testing or measurement, and evaluation skills. *In short, measurement refers to a score, while the interpretation of whether that score is good or bad is evaluation.*

There are basically two reasons for educational evaluation. One is for *accountability:* is the instructional program accomplishing its goals and objectives? The second reason for evaluation is to *improve the educational program.*

In addition, here are some specific purposes for evaluation:

- adapting the instruction to the differing needs of individual pupils,
- educational guidance,
- personal guidance,
- overall appraisal of the school program, and
- providing a basis, through reports to parents and school patrons, for improving public opinion.

EVALUATION - FOR WHAT?

One of the first questions that teachers or aides must ask in regards to testing and evaluation is: "what is to be evaluated?"

Intelligence. Psychologists have many definitions of intelligence. One of the more popular (but not universally accepted) definitions is that *intelligence is that which a properly standardized intelligence test measures.* In other words, according to this definition, a person' intelligence is no more or less than a particular score on a particular test.

Alfred Binet was the father of modern intelligence testing. In 1904 the French Minister of Public Instruction commissioned Binet to determine a workable method for *identifying* mentally retarded school children so that they might be given special instruction and help. Accordingly, Binet came up with the first standardized tests of intelligence. Binet characterized intelligence as *inventiveness depending upon comprehension and* *ability to maintain direction or purposefulness.*

Different types of intelligence tests are described later on in this unit. It is sufficient to say at this point that intelligence tests have been primarily used as a *diagnostic tool* to help identify individuals with special needs. This includes helping retarded students or very gifted students with special educational programs.

Interest. Interest is another trait or characteristic that teachers and aides may want to evaluate. *Interest is a tendency to pay attention to and usually enjoy some activity or content.* A teacher's aide might want to evaluate a student's attitude about an education program. This would be done by evaluating the student's interest in the course.

Achievement. *Achievement refers to a student's acquired ability.* Achievement tests, therefore, measure the amount of learning a student has acquired in a course.

Aptitude. *The student's capacity or potential for learning is his aptitude.* Aptitude tests are used to *predict* the outcome of training. For example, if a teacher wants to predict future typewriting ability on the basis of present ability, he would use an *aptitude test*. At the finish of the typing course, the teacher might then want to administer an *achievement test*.

Physical status. Since good physical health is important in terms of just about everything a person does, the teacher quite often will want to know about the physical condition of his students. Learning ability and health are closely related. In fact, some learning disabilities are caused by physical diseases. Teachers' aides should be aware of this fact, and, in discussion with their teachers, recommend that any student suspected of having a physical learning disability be given a thorough physical examination by a physician. The physical examination should be followed by examination by a psychologist, if the school has one available to it.

Emotional status. *Emotional status refers to the mental health, as opposed to the physical health of the student.* Emotional stability is related to psychological health. Attitudes, feelings, and other student behavior are all affected by the emotional health of a student. Although teachers or teachers' aides normally evaluate the student's *attitudes*, an expert such as a school psychologist or counselor should be brought in to help out if a problem is suspected.

METHODS AND USE OF EVALUATION

Evaluative Methods

Teachers' aides need to become aware of the more common evaluation usages directly related to scholastic performance, as:

- *Scholastic Aptitude*. The grades a student has earned in preceding studies are used to evaluate scholastic aptitude. The best predictor of a student's ability to succeed in future schooling is some measurement of his past school achievement. *However, great care must be taken not to prejudge a student solely on the basis of past grades.*
- *Scholastic Achievement*. This assessment is based on scholastic marks earned in earlier grades, various standardized and teacher-made achievement tests, survey and diagnostic tests of basic skills, school activities, and work experience.
- *Special Abilities*. These include clerical, mathematical, artistic, musical, mechanical, and other abilities. They may be subdivided into categories, such as musical memory, mechanical ingenuity, or scientific reasoning, or into occupational fields such as health, public service, or construction. The various means of appraising these abilities include printed tests, products made by students, oral interviews, and evaluation of students' previous achievements and performance.
- *Personal Interests and Plans*. This information, in conjunction with other bits of information, can be used to predict whether a student will stay in a particular field of study. Some evaluative methods deal with expressed likes and dislikes of the student; others attempt to determine his latent interests.
- *Home and Family Relationships*. Home and family relationships, emotional and social adjustment, and attitudes; these can be grouped together since they are so closely related. Sometimes, they are included in one category, described as *personality*.
- *Work Experience*. This helps in understanding students in relation to their personality and environment, and also provides information of value for instruction and guidance.

Using the Evaluation. Teaching personnel should understand that the purpose of measurement is to adjust instruction and teaching to the learning abilities of students. Using test scores for grouping, grading, and passing is less important than using them to make changes in instructional methods.

It is also important to remember that a test is merely an indicator or an aid to help the teacher work better with the student. It is not a goal in itself, since one measurement should certainly never be used by itself as a final appraisal or evaluation of progress or ability.

Student attitudes toward testing are important. When test results are interpreted, always consider information such as the student's home background, his health, his ability, etc. Do not use test results solely to compare students and do not scold a student for doing poorly on a test.

Unless the student is told about how he did on a test and given an indication of how the testing is related to his purposes, he can make no sense of the testing procedure. The teacher's aide can help explain the reason for a test to the student.

TECHNIQUES OF EVALUATION

In preparing a program of evaluating pupil growth and development, different methods can and should be used. Here are brief discussions of some of the basic evaluation devices:

The Interview

One of the most widely used measurement devices is the *interview*. Almost everyone is interviewed or interviews others during the course of his life. For example, information interviews occur everytime a teacher aide talks to a student. Formal interviews differ from informal interviews in that they are usually well structured and have a specific purpose in mind. An aide may interview students to see who would like to take a special course during the summer. This would be a formal interview. Interviews differ from tests as the interviewer may adjust his questions to the answers he hears and thereby probe and explore additional areas.

Although interviews are thus more *flexible* than standard tests, they are also more *subjective*. The interviewer's prejudices and biases are more likely to operate freely in an interviewing situation. However, when properly planned and conducted, interviews can be of value. The interviewee has a chance to impart information to the interviewer that would be difficult if not impossible to do on a test. Teachers' aides should gain as much experience as possible in interviewing techniques.

Questionnaire

Certainly a practical way to gain information about a person is to ask the person a question or series of questions. When a teacher or aide prepares a written list of such questions, he is preparing a *questionnaire*. The questions making up questionnaires may be of virtually any kind or they may deal with any subject the teacher and aide want to explore. Questionnaires can be mailed to people for educational research purposes; however, the teacher's aide will usually distribute questionnaires only to students in his class or school.

The aide should be aware of some of the more common hazards in using questionnaires. Students will sometimes make careless errors, forget information, or purposely distort their answers. Great care is required in interpreting the results of questionnaires.

Analysis of Hobbies and Out-of-school Activities

Another technique for student evaluation is to analyze the interests and extracurricular activities of the students. Is the pupil's growth and development realistically related to his educational program and goals?

Interest Tests

Many evaluative devices involve reports that the pupil fills in himself (*self-reports*) or reports by others. Some common vocational interest inventories include the *Strong Vocational Interest Blank (VIB) for Men* and *Kuder Preference Record - Vocational*. These inventories help to determine the relationship between the expressed interests of the student with the interests of many people in different occupational groups.

Personality inventories and attitude scales are additional tests that can be used to help the teacher and aide evaluate individual pupils. Evaluating such tests, or *scales* as they are sometimes called, requires considerable judgment. Sometimes these tests may be of value to the teacher or counselor in suggesting *leads* for further attention.

The Commercial Test vs. the Teacher's Own Test. Whose test should be used, one developed by the teacher or one developed by a testing company? For some purposes, a teacher's own test will be best; in other cases, standardized commercially published tests are best. This decision must be made by the teacher, giving consideration to the types of students in the class.

Interpreting Scores or Results of Evaluations. When evaluating tests results, the teacher or aide should:

- Analyze the individual pupil's capacities, knowledge, past experience, interests, and needs.
- Analyze the pupil's goals, and help and encourage him to revise his goals either upward or downward in accordance with his capacities.
- Harmonize the educational process with the pupil's capacities and goals.
- Evaluate the pupil's progress in terms of his capacities and goals.
- Reconsider with the pupil the revised goals in the light of progress he has achieved and strive to correct weaknesses that would interfere with his attaining reasonable goals.

Some of these factors can be measured with rather precise methods and instruments. Others require careful judgment based on effective observations of the pupil and his work.

INSTRUMENTS OF EVALUATION

Teacher aides must become familiar with some of the instruments of evaluation and the standards by which they are established. Often the aide will be required to learn how to construct individual and class educational profiles to show development over a period of years, and to evaluate the adequacy of test batteries, testing programs, norms, scores, and reporting In addition, the aide may need to know the relative value of so-called intelligence tests, different types of school marks, achievement tests, and so-called *prognostic* tests, used to predict pupil achievement in a given field.

Defining Areas of Measurement

- *Measures of Intelligence.* Perhaps the most important factor for success in school work is the ability to think abstractly - that is, to understand and manipulate abstract symbols, such as mathematical symbols, word meanings, and verbal relationships.
- *Measures of Achievement.* These are used to appraise a student's educational growth and development, and what he has learned in school or other situations where learning and teaching are conducted. Scores are also excellent bases for predicting future educational success in the areas measured by the tests.

Selecting Measurement Instruments

A measurement instrument - that is, a test - should be judged on these points:

- *Validity* - Does the test measure what it should? *A valid test is one that measures what it says it is measuring.* Test validity should not be confused with test reliability.
- *Reliability* - Does the test yield similar results when used with similar groups of pupils? *Test reliability refers to the accuracy or consistency of the test.* If a student retakes the same test, the more alike the two scores are, the more consistent or reliable the test.
- *Administrability* - Do the administrator and pupils find the instructions easy to follow? Is the test easily scored?
- *Interpretability* - Are the scores easy to interpret and understand?

Basic Standardized Measurement Instruments

Some of the more common measuring instruments (or tests) include:

- *Measures of Achievement.*
    - Sequential Tests of Educational Progress (STEP).
    - SRA Achievement Series.
    - Iowa Tests of Educational Development.
    - United States Armed Forces Institute (USAFI) Tests.
- *Reading Tests (diagnostic).*
    - Gates Reading Diagnostic Tests.
    - Durrell-Sullivan Reading Capacity and Achievement Tests.
    - SRA Reading Record.
    - Stroud-Hieronymus Primary Reading Profiles.
- *Measures of Intelligence (individual tests).* These intelligence tests are administered by school psychologists or pupil personnel workers:
    - Revised Stanford-Binet Tests of Intelligence.
    - Wechsler Intelligence Scale for Children (WISC).
    - Wechsler Adult Intelligence Scale (WAIS).
    - Wechsler-Bellevue Intelligence Scale (adolescents).
- *Measures of Intelligence (group tests)*
    - California Test of Mental Maturity.
    - Lorge-Thorndike Intelligence Tests.

  - School and College Abilities Test.

- *Interest Inventories*

  - Kuder Preference Record: Personal and Vocational.
  - Brainard Occupational Preference Inventory.
  - Thurstone's Vocational Interest Schedule.
  - Strong's Vocational Interest Schedule.

- *Rating Scales (for appraising pupil adjustment)*

  - Haggerty-Olston-Wickman Behavior Rating Schedule.
  - Vineland Social Maturity Scale.
  - American Council on Education Personality Report.

Teachers' aides should become familiar with the names and uses of the test materials above. A comprehensive list of tests used by educators and psychologists can be found in *The Seventh Mental Measurements Yearbook*. Published in two volumes, these books can be used as a valuable reference to the teacher and aide. They provide the reader with brief summaries of the tests, and critical reviews of their effectiveness. Almost every major test used in America today is described in these two volumes.

TESTING PROCEDURES

Teachers' aides, counselor aides, and school administrative aides should become familiar with the basic techniques administering a test or battery of tests. They need to learn how to help the teacher during test administration and scoring, and to gain an understanding of the nature and adequacy of norms and scores.

General Techniques

- *Avoiding Distractions*. The door of the classroom, or testing room, should have a sign warning visitors to keep out during testing. The aide should be sure that noises from the street or from other classrooms are not distracting. Students taking the test should be told whether they are to disregard school bells and continue working past the regular class period.

- *Distributing Tests to Examiners*. If students are being tested in more than one classroom, the tests should not be distributed to examiners before the day of the examination. Packages for each classroom should be made up with the proper number of tests, answer sheets, special pencils, and other materials in advance, and distributed on the day of the test.

- *Sticking to Instructions.* On standardized tests (those prepared by testing companies) it is absolutely necessary to strictly follow directions in the test manual about answering pupils' questions after a test has started or helping pupils with test items, unfamiliar words, or misunderstood directions. Otherwise, the scores may be uninterpretable, or biased, in the light of the norms or average scores provided with the tests.

- *Timing.* The test administrator should stick carefully to any time limits set for a test, using a watch or clock with a second hand, or a stop watch. If possible, an aide should also check the time throughout the test with his own watch. In timing tests, the examiner should write down the exact hour, minute, and second he gives the signal to start. He should also compute and write down the time for giving the signal to stop.

- *Supervision.* While the students are working on the test, examiners and aides should move about the room as quietly as possible to make sure that everyone puts his answers down properly, and is working on the right part of the test. Watching a student over his shoulder or moving quickly about the room may distract students from their work.

- *Making Notations.* After the examiner has collected the testing materials, he should take note of unusual events in the testing - whether anyone had to leave the room, or showed marked anxiety, or whether there were disruptions, such as a fire drill. Such notes should be taken into account in interpreting the scores. In standardized tests, the examiner should be especially careful to note any discrepancies between the conditions, directions, or time limits under which the test was given, and those listed in the instructions in the test material.

- *Security of Examinations.* Whenever standardized tests are used, provision should be made for their security. Many test publishers include instructions such as the following on the packages of tests, which are sealed when they are shipped:

  "Keep these tests locked up and out of sight of examinees both before the examination and after. Remember that you may wish to give the same test again, or some other teacher may wish to give it, and the result of later testings may be invalidated if stray copies of the test have falled into the hands of students."

Administering Tests

The following guidelines should be followed by the educational aide in administering tests:

- *Tests are merely attempts to sample what has been learned.*
- Students should know some days in advance that they are to take a standardized test in a particular area of work and they should be informed of the purposes and general form of the test, but they should not be told of its specific content.
- Students should have the opportunity to take practice tests to familiarize themselves with the mechanics of a standardized test before the actual test begins. This applies, however, only to objective test questions and the procedures for marking the answer sheets.
- It is sometimes helpful to pass around a sample, well-marked answer sheet before a test begins, and to mention that pupils may get a lower score if they do not mark the answer sheet properly.
- Following an examination, it is a good idea to pass out the corrected answer sheets and test booklets to a class so they can discuss the items and interpret the results. This practice calls the attention of the class to any group weaknesses in learning, and may suggest a need for reteaching and relearning.
- Teaching for a test is a mistake. The instructor may impress his peers with the high scores his class gets, but he is doing his students a bad turn - the teacher is, in fact, saying that he feels personally insecure and threatened by the test. *The purpose of a test is not to judge the teacher's competence as a teacher.*
- Whenever possible, the students should be tested individually, rather than in groups. In this way the examiner can be aware of nonverbal signs from the student. By carefully watching lip movements, facial expressions, and signs of nervousness, the teacher may learn more about the student than the results of a test can show.

TEST SCORING

The educational aide must become familiar with scoring devices. In addition to helping the teacher as a monitor during the tests, he should be able to use scoring devices in marking stardardized tests.

Order of Scoring

With essay tests, it is often a good idea to have one person score all tests on the first question, then all on the second, and so on. In this way a fair comparison of the whole class can be made on each question. If the answers to objective tests are written directly in the test booklets instead of on separate answer sheets, the scorer can score a given page in all booklets first, then the next page, and so on, rather than scoring all of one booklet before going on to the next. If so many booklets must be scored that several aides are needed, each person can specialize on a given page or group of pages of the booklet, but should score only one page in all booklets at a time.

Rescoring

If there are many booklets to be scored, it is always worthwhile, provided sufficient help is available, to go over the tests again to eliminate errors that otherwise are almost inevitable in a clerical task such as this. If complete rescoring is not feasible, every fifth or tenth booklet should be rescored to get an idea of the frequency and magnitude of scoring errors.

Scoring Devices

Before the aide can begin scoring, he will usually need scoring keys or stencils. Standardized tests have scoring keys, stencils, or other devices that permit rapid and accurate scoring. These keys are of five major types:

- *Strip keys* are used with tests that have the answer spaces along one side of the page in the test booklet. The strip key contains the correct responses in a vertical column on a narrow strip of paper that is placed next to the column of answers in the test booklet.
- *Window stencils* are used when the answer spaces are scattered over the page of the test booklet rather than placed in a single column. The stencils are usually made of heavy paper or plastic and have holes cut in them. When the scorer places the stencil over the page of the test booklet, the correct answer spaces show through the holes. The scorer then counts the number of times the student has filled in the correct answer space, thus obtaining the pupil's score for that page of the test. Frequently, heavy black lines on the stencil connect the holes to guide the scorer's eyes.
- *Carbon* answer sheets are used with multiple-choice tests.

On this type, the student answers each question by placing an X in one of a row of small squares. The X is transferred by means of a thin coating of carbon on the reverse side of the answer sheet onto another sheet that contains only the squares for the correct answers. If the pupil writes his X in the correct square, it will show in the square on the second sheet. The teacher scores the tests simply by counting the number of X's in the small squares on the second sheet.

- *Pinprick* answer sheets are quite similar to the carbon answer sheets. The pupil punches holes in the answer sheet, using a large-headed pin or a stylus. The teacher scores his answers by counting the number of holes that appear within the squares on the reverse side of the answer sheet.
- *Machine-scoring stencils* are used on tests with a separate answer sheet. The stencil is placed over the answer sheets in much the same manner as that described for the window stencils. This procedure is more economical and efficient than the carbon method. Scoring the carbon-type answer sheet requires counting the marks inside circles or squares on the back of the answer sheet, and disregarding the other marks. The machine-scoring stencil requires only counting the marks showing through the holes in the stencils.
- *Machine-scoring devices* are used for large-scale testing programs. The pupil records his answers with a special soft pencil. Marks made by this pencil conduct electricity. The answer sheet is scored by putting it in the machine, pressing a lever to bring the sheet against contact units inside the machine, and reading the score registered by a needle on a meter. Such machines often provide the most accurate and least troublesome means of scoring objective tests.

Differences Between Test Scores and Marks

In addition to becoming knowledgeable about scoring devices, the educational aide should know what scores mean. A raw score on a test means very little. Even if the teacher changes raw scores into percentile ranks, grade placement scores, or various norms, he is merely comparing the performance of one pupil with that of others.

Test scores are only indexes of measurement, and measurement in itself has no particular meaning. Marks or grades, on the other hand, are indexes of *evaluation;* they involve relating the raw score to overall objectives, goals, or standards.

The final section in this unit on testing and evaluation will discuss the meaning of grades and different ways of evaluating student performance.

GRADING SYSTEMS

All educational aides should be able to discuss and use different grading systems. In order to do this, they should be familiar with various systems of evaluating performance by giving grades.

It is important to note that *the major shortcoming of grades or marks is that they are not precisely defined.* The same marks often mean different things to different teachers - even in the same school system. In every school system, it is important that everyone understands what each mark means, as defined further on in this section.

Marking Systems

Reasons for Marking Systems. The educational aide should become familiar with the purposes for marking systems:

- They give information to parents on the child's status and progress in school.
- Grades motivate the students, (and often reflect his motivation).
- They help guide.
- Grades aid the student in planning further education and a career.
- Grades are used in reports and recommendations to future employers, or schools.
- Grades provide data for curriculum studies.

Kinds of Marking Systems.

- *Percentage System*. One of the most common marking systems in public schools is the 100-point scale of percentage: All grades of 70 or higher indicate satisfactory or *passing* work. Marks lower than 70 indicate *failure*. In a typical classroom, pupils receive grades like 81, 84, 96, or 64. The measurement instruments and techniques now available cannot produce the exact results that such marks appear to indicate.
- *Two Category System*. Some educators suggest using just two categories of grading, such as pass or fail (P-F), satisfactory or unsatisfactory (S-U), or plus or minus (+ or -). This system's advantage (many feel, disadvantage) is that it seems to imply that all students who receive a *pass* grade are alike in their abilities or achievement, thereby reducing competition. This system has gained some acceptance, and, where it has been used, some teachers have added the

categories P+, P-, F+, and F-, so that they are actually using a variation of a point system.

- *Five-Point System*. The other marking system most frequently used is based on five *points*, with four *marks* indicating passing or satisfactory work and one mark indicating failing or unsatisfactory work. These points are usually given in letter grades from hight to low (A, B, C, D, and F), or numbers (1, 2, 3, 4, and 5, or in reverse order). Although some teachers use only the five categories, others use plus and minus signs to indicate performance slightly above or below a given mark.

Definition of Letter Grades

The following definitions of grades are helpful, but they are not really precise, because they do not state exactly what the goals are against which the student's achievement is measured:

- *A - Excellent*. This student is outstanding. He has achieved all the major and minor goals of the class. His level of achievement is considerably above the minimum required for doing more advanced work in the subject under consideration.
- *B - Highly Satisfactory*. The work of this student is generally better than average. He has achieved all the major goals and many of the minor goals of the class. His level is somewhat above the minimum required for doing advanced work in the same field.
- *C - Satisfactory*. This student's work is acceptable, but not outstanding. He has achieved the major goals, but not the minor ones. His level of achievement barely meets the minimum required for more advanced work in the same field, but he has no major handicaps to overcome.
- *D - Poor*. The work of this student is noticeably weak. He has achieved only a few of the major goals of the class. His level of achievement is so limited that he is not prepared to work on a more advanced level in the same field without considerable remedial work and individual assistance.
- *F - Unsatisfactory*. This student does not meet the minimum requirements of the class. He has achieved none of the major goals. He has failed to accomplish the minimum essential for continued progress in the subject.

Grading on the Curve

In this marking system, the teacher assigns grades according to the range of test scores in the class. This means that the large group of students who receive scores in the middle of the range will get the average mark for the class. The relatively few pupils at the extremes of the range get the top and bottom marks, respectively, and the pupils between the middle and extreme groups get the above-average and below-average grades. This is *norm-referenced* grading.

Norm- and Criterion-Referenced Grading

There is actually no difference between *norm-referenced* and *criterion-referenced* tests. It is the *evaluation* method of the two tests that differs.

Assigning a grade based on the accomplishment of specific objectives or *criteria* (singular - *criterion*) is fundamentally different than grading on the curve. Criterion-referenced measures are those which are used to determine a student's status with respect to some criterion, or performance standard. With criterion-referenced measurement, the teacher lists the specific criteria that must be accomplished to obtain an "A," the specific criteria that must be met to obtain a "B," etc.

If a teacher grades on a curve there are usually a few "A's" and "F's," some "B's" amd "D's," and the average students receive "C." However, if a teacher grades according to criterion-referenced measures, it is entirely possible that the whole class could get "A's" if they all accomplished the goals and objectives of the course. In actual practice this does not often happen, but at least the student is only competing against himself in terms of accomplishing the stated criteria, and is not directly compared to others in his class on a curve.

In general, it can be said that *norm-reference tests are used to compare or select a student in comparison with others in a similar group.*

Criterion-referenced tests are usually used to make decisions about individuals or the effectiveness of educational programs. Selectivity is not a usual factor with criterion-reference tests.

STUDENT
LEARNING
ACTIVITIES

° Discuss in small groups questions such as these:

  1. What is to be evaluated?
  2. What are the purposes of evaluation?
  3. What can we use for evaluating purposes?
  4. Can we do it ourselves?
  5. What does the term *scorer* mean?

° Compare methods of measurement in arithmetic with measurements in the social studies, sciences, and art. Discuss the important similarities and differences.

- Debate the following statement - *The educational aide should have as much responsibility as the teacher or counselor in evaluating students.*
- View and discuss films on different aspects of testing and evaluation, for example, *Somebody's Cheating* and *Examinations*.
- Prepare a notebook containing an outline of at least twelve of the more common standardized tests of achievement, reading (diagnostic), intelligence, and vocational interest. Include a brief description of the purpose of each test.
- Compare and discuss the merits of several group intelligence tests designed for the same grade level.
- Look at a so-called diagnostic test. How does it differ from an achievement test? What makes it diagnostic?
- Set up a plan with the help of your teacher for organizing a testing program in a school.
- As a class project, make a study of a standardized achievement test for a given grade level or area of instruction. Make up an evaluation sheet with three columns of responses for each question and rate it according to the three criteria below, placing check marks in Columns 1 and 2 for affirmative responses, zeros for negative responses. In Column 3 put a number to indicate the value of your response:

  Column 1: Are we teaching the knowledge, skill, and thinking processes required to answer this item?

  Column 2: Should the average pupil in my class be able to answer this item correctly?

  Column 3: How important are the skills, knowledge, and mental processes required to answer this item correctly? (Mark 4 for very high, 3 for high, 2 for low, and 1 for very low.) Add all values on the test and find the average importance value of the test. Compare different tests by this procedure.
- Discuss why a pupil's merit should not be judged solely on the basis of his scores on standardized achievement tests.
- Give reasons for and against informing students whether a forthcoming test is to be of the short answer or the essay type.
- Discuss how you would deal with a parent who believes that the schools are doing too much testing and not enough teaching, or that teachers *ought to be doing what they are being paid for doing*.
- Examine your own experience for instances when you think your learning was evaluated on a superficial or otherwise inadequate basis. Discuss how improved evaluation might have affected your education.

- Write a short essay on the merits of *norm-referenced* grading and *criterion-referenced* grading. State when you would use each grading evaluation method, and why?

TEACHER MANAGEMENT ACTIVITIES

- Divide the class into small groups and have them discuss questions such as:

  1. What is to be evaluated?
  2. What are the purposes of evaluations?
  3. What can we use for evaluating purposes?
  4. Can we evaluate it ourselves?
  5. What does the term *scorer* mean?

- Compare different methods of measurement in the social studies, sciences, and art, with discussion on the important similarities and differences.
- Discuss the responsibilities of a primary teacher in measurement and evaluation.
- Allow the class to debate statements such as: *The educational aide should have as much responsibility as the teacher or counselor in evaluating students.*
- Show films on testing and evaluation, as *Somebody's Cheating* and *Examinations*. Encourage class discussion of important points afterwards.
- Have the students prepare notebooks containing brief descriptions of at least 12 of the more common standardized tests. The notebook should include samples of various instruments, achievement, reading (diagnostic), intelligence, and vocational interest tests.
- Have the class compare the merits of each test of several group intelligence tests designed for the same grade level.
- Help your students set up a plan for organizing a testing program in a school. An example of a problem to work on would be: Assume that you have all grades from kindergarten through high school. The enrollment of the school is approximately 800 pupils - about 70 percent elementary and 30 percent in high school. The school has not used a systematic testing program before. Assume that you have a budget of $500 for the first year.

  As its director, how would you decide on the purposes of the program?

  What instruments would you use?

  How would you go about getting the program planned, installed, and administered?

  What would you do with the test results?

- Assign a class project on evaluating a standardized achievement test for a given grade level or area of instruction.

- Encourage discussion on how students feel their own learning has been affected by teacher grading and evaluation in the past.
- Assign essays on the merits of *norm-referenced* grading and *criterion-referenced* grading. Be sure that the students include a *rationale* for using each method.

RESOURCES

A Programmed Guide: Fundamentals of Measurement and Evaluation, J. T. Flynn, Van Nostrand-Reinhold Co., 1969.

Measurement and Evaluation in the Classroom, C. H. Nelson, Macmillan, 1970.

Somebody's Cheating (PTS 2) (Sound Filmstrip, purchase), Harcourt Brace and Jovanovich, Inc., 1969.

The Specification and Measurement of Learning Outcomes, D. A. Payne, Ed., Ginn and Company, 1969.

Examinations (S) (Movie, 16mm reel, rental), Indiana University A-V Center, 1970.

Test Construction: A Programmed Guide, Allyn and Bacon, 1970.

Tips in Taking Tests, National Education Association, 1970.

Tests and Measurement, F. G. Brown, Holt, Rinehart and Winston, 1969.

Educational Measurement, E. F. Lyndquist, Ed., Scott Foresman and Company. 1967.

Standards for Educational and Psychological Tests and Manuals, American Psychological Association, 1966.

Making the Classroom Test: A Guide for Teachers, Educational Testing Service, 1961.

Elementary Statistical Methods for Educational Measurement, A. E. Bartz, Burgess Publishing Company, 1966.

Kuder Preference Record-Vocational, Science Research Associates, Inc. 1962

Vocational Interest Blank for Men: Manual, E. K. Strong, Consulting Psychologists Press. 1966.

Criterion - Referenced Measurement, W. James Popham, Ed., by Educational Technology Publications, 1971.

The Seventh Mental Measurements Yearbook, Volume I, Oscar Krisen Buros, The Gryphon Press, 1972.

The Seventh Mental Measurements Yearbook, Volume II, Oscar Krisen Buros, The Gryphon Press, 1972.

Appendix A

RESOURCE SUPPLIERS

Appendix A

RESOURCE SUPPLIERS

This appendix is a listing of suppliers of resources itemized at the end of each unit of the individual sections.

Addison-Wesley Publishing Co., Inc.
Reading, Massachusetts 01867

Allyn & Bacon, Inc.
Rockleigh, New Jersey 07674

American Library Association
50 East Huron Street
Chicago, Illinois 60611

American Psychological Association
1200 17th Street, N.W.
Washington, D.C. 20036

Association Press
291 Broadway
New York, New York 10007

Behavioral Research Laboratory
Box 577
Palo Alto, California 94302

Bobbs-Merrill Company, Inc.
Subsidiary, Howard W. Sams & Co.
4300 West 62nd Street
Indianapolis, Indiana 46268

Burgess Publishing Company
426 South Sixth Street
Minneapolis, Minnesota 55415

Carousel Films, Inc.
1501 Broadway
New York, New York 10036

CENCO Educational Aids
2600 S. Kostner Avenue
Chicago, Illinois 60623

Center for Applied Research in Education
70 Fifth Avenue
New York, New York 10011

Chandler Publishing Company
124 Spear Street
San Francisco, California 94105

Churchill Films
6671 Sunset Blvd.
Los Angeles, California 90028

Classroom World Productions
516 West 34th Street
New York, New York 10001

College Entrance Examination Board
475 Riverside Drive
New York, New York 10027
  Publications Order Office
  Box 592
  Princeton, New Jersey 08540

Consulting Psychologists Press
577 College Avenue
Palo Alto, California 94306

Coronet Films
65 E. South Water Street
Chicago, Illinois 60601

Creative Visuals
Box 1911
Big Spring, Texas 79720

Daedalus Periodical
American Academy of Arts and
  Sciences
7 Linden Street
Cambridge, Massachusetts 02114

Educational Activities, Inc.
P. O. Box 392
Freeport, L. I., New York 11520
  or, 4067 Transport Street
  Palo Alto, California 94303

Educational Facilities Laboratory
477 Madison Avenue
New York, New York 10022

Educational Technology Publications,
  Inc.
140 Sylvan Avenue
Englewood Cliffs, New Jersey 07632

Educational Testing Service
Princeton, New Jersey 08540

Encyclopaedia Britannica Educational
  Corporation
425 North Michigan Avenue
Chicago, Illinois 60611

Eye Gate House, Inc.
146-01 Archer Avenue
Jamaica, New York 11435

Fawcett World Library
1 Astor Plaza
New York, New York 10036

Fearon Publishers
2165 Park Boulevard
Palo Alto, California 94306

Filmstrip House, Inc.
432 Park Avenue South
New York, New York 10016

Follett Educational Corporation
1010 West Washington Boulevard
Chicago, Illinois 60607

Franklin Watts, Inc.
575 Lexington Avenue
New York, New York 10022
  A Division of Grolier, Inc.

W. H. Freeman and Company
660 Market Street
San Francisco, California 94104

The Free Press
The Macmillan Company
866 Third Avenue
New York, New York 10026

Ginn and Company
35 Mobile Drive
Toronto 16, Ontario, Canada

The Gryphon Press
220 Montgomery Street
Highland Park, New Jersey 08904

Harcourt Brace Jovanovich, Inc.
757 Third Avenue
New York, New York 10017

Holt, Rinehart and Winston, Inc.
383 Madison Avenue
New York, New York 10017

Houghton Mifflin Company
2 Park Street
Boston, Massachusetts 02107

Indiana University Audio-Visual
  Center
Field Services Department
Bloomington, Indiana 47401

Instructional Aids, Inc.
P. O. Box 191
Mankato, Minnesota 56001

The Judy Company
Affiliate, General Learning
  Corporation
310 North Second Street
Minneapolis, Minnesota 55401

Laidlaw Brothers
Division, Doubleday Publishers
Thatcher and Madison
River Forest, Illinois 60305

The Macmillan Company
866 Third Avenue
New York, New York 10022

Charles E. Merrill Publishing
  Company
1300 Alum Creek Drive
Columbus, Ohio 43216

McGraw-Hill Book Company
330 West 42nd Street
New York, New York 10036

National Audio-Visual Assn., Inc.
3150 Spring Street
Fairfax, Virginia 22030

National Education Association
Association for Educational
  Communications and Technology
1201 16th Street, N.W.
Washington, D.C. 20036

New American Library, Inc.
Subsidiary, Times-Mirror Press
1301 Avenue of the Americas
New York, New York 10019

Noble and Noble Publishers, Inc.
750 Third Avenue
New York, New York 10017

Oregon State System of Higher
  Education
Teaching Research Division
Monmouth, Oregon 97361

Prentice-Hall, Inc.
70 Fifth Avenue
New York, New York 10011

Warren Schloat Productions, Inc.
Division, Prentice-Hall Company
Pleasantville, New York 10570

Science Research Associates, Inc.
259 East Erie Street
Chicago, Illinois 60611

Scott, Foresman and Company
1900 E. Lake Avenue
Glenview, Illinois 60025

Society for Visual Education, Inc.
1345 Diversey Parkway
Chicago, Illinois 60614

Stanton Films
7934 Santa Monica Blvd.
Los Angeles, California 90046

Teachers College Press
Teachers College, Columbia
  University
525 West 120th Street
New York, New York 10027

3M Company
Visual Products Division
3M Center
St. Paul, Minnesota 55101

U.S. Office of Education
Department of Health, Education
  and Welfare
Washington, D.C. 20201

Van Nostrand Reinhold Company
450 West 33rd Street
New York, New York 10001

John Wiley & Sons, Inc.
605 Third Avenue
New York, New York 10016

Project Staff

Patrick J. Weagraff, Ed. D.	Director
James J. Lynn, M.S.	Curriculum Specialist
Harold M. Blue	Editor
Jean Smith	Reproduction Typist
Miriam Dong	Reproduction Typist
Lillian Deger	Typist
Mary Sullivan	Typist